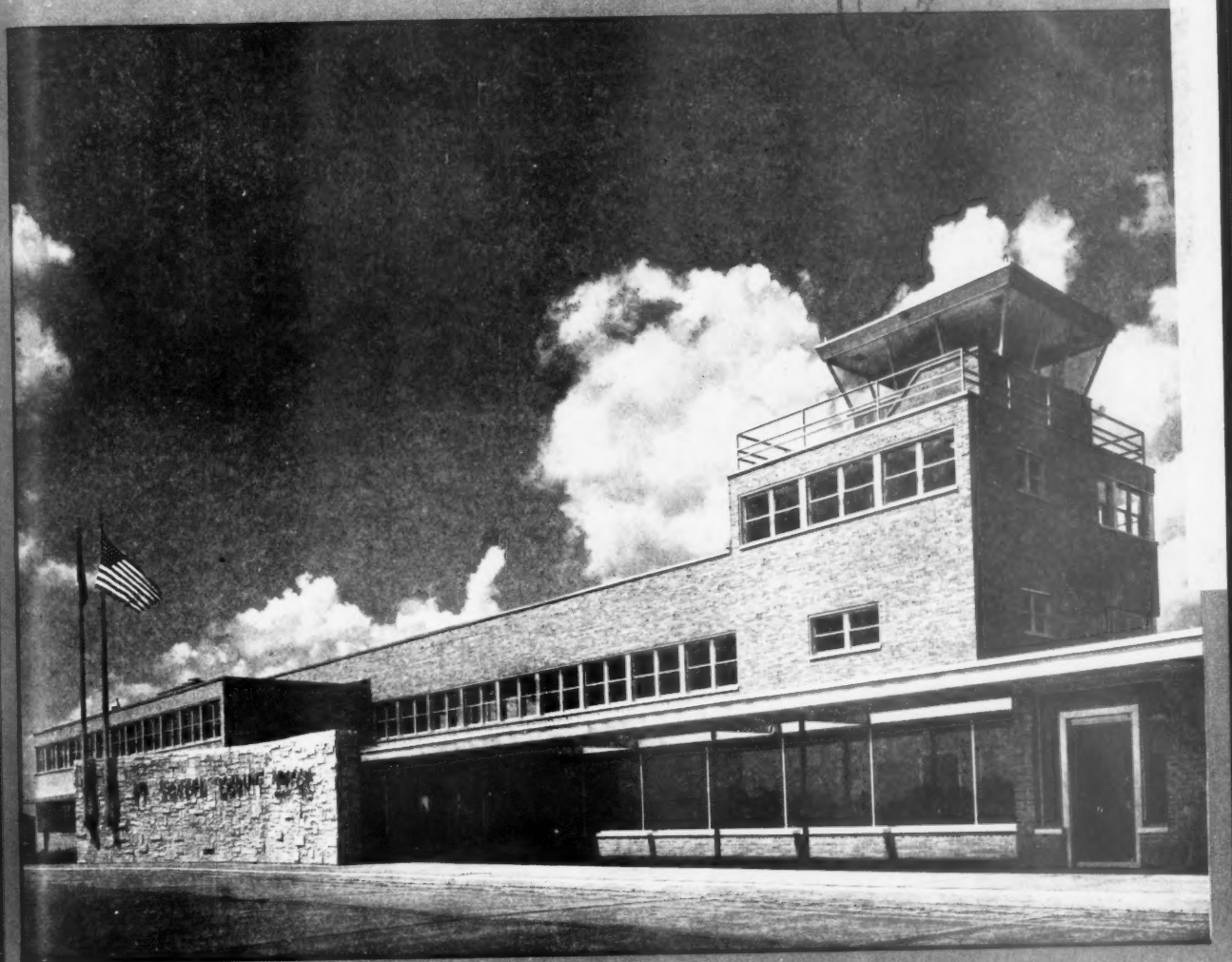
THIRD S[illegible] VOL 58 NUMBER 3 JANUARY 195[illegible]

THE JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

66 PORTLAND PLACE LONDON W1 · TWO SHILLINGS AND SIXPENC[illegible]



Airport terminal at South Bend, Indiana. Architects: Roy A. Worden & Associates. Photo: Architectural Forum

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THIRD SERIES VOL 58 NUMBER 3 : JANUARY 1951 : 66 PORTLAND PLACE LONDON W1 : TWO SHILLINGS & SIXPENCE

The Honorary Fellowship

H.R.H. The Duke of Edinburgh, K.G., has graciously accepted the Council's nomination for election as an Honorary Fellow.

New Year Honours

Alderman Richard Coppock, C.B.E. [*Hon. A*], General Secretary of the National Federation of Building Trades' Operatives, and Mr. A. C. MacTaggart, President of the Federation of Civil Engineering Contractors, have been created Knights Bachelor. Sir Godfrey Ince, K.C.B., K.B.E., Permanent Secretary, Ministry of Labour, is made a Knight Grand Cross of the Order of the Bath, and the C.V.O. is conferred upon Mr. Arthur Campbell Martin [*F*].

The following are created Commanders of the Order of the British Empire: Mr. Donald E. E. Gibson [*A*], City Architect, Coventry, Mr. J. C. Jones, Director of Education, the Polytechnic, Regent Street, London (member of A.R.C.U.K. Board of Architectural Education), Mr. John W. Laing, Chairman of John Laing and Son, builders, Mr. W. A. Ross [*F*], Mr. Adrian Gilbert Scott [*F*], and Mr. R. W. Trumper, Past President, R.I.C.S.

The O.B.E. has been conferred upon Mr. Charles Greenwood [*L*], Mr. J. E. Swindlehurst, President of the Institution of Structural Engineers, and Mr. P. J. Williams [*L*].

The M.B.E. has been conferred upon the following members of the Royal Institute: Mr. George Patrick Houston Watson [*F*], Mrs. E. D. Hughes [*F*], of Kenya, Mr. Oliver Weerasinghe [*F*], of Ceylon, Mr. Eric L. Bird, M.C. [*A*], Editor, R.I.B.A. JOURNAL, and Mr. F. E. Greenish, M.C., V.D. [*A*], of New Zealand.

Honorary Associates

The Earl of Rosse, M.B.E., and Mr. A. Oswald, M.A., have accepted the nomination of the Council for election to the Honorary Associateship. The Earl of Rosse is Chairman of the Georgian Group; members will recollect his paper at the Bristol Conference on *The Protection and Preservation of Historic Buildings*. Mr. Oswald is an eminent architectural scholar. His studies of historic British houses in COUNTRY LIFE are well known to members.

A.S.B. Lecture Postponed

The Architectural Science Board Lecture on *Floor Finishes*, by Dr. F. C. Harper, announced for Tuesday 13 February, has been postponed to Tuesday 27 February, 6 p.m.

Lecture on the United Nations Building, New York

One of the outstanding events of the Session will be the visit on Tuesday, 20 February, of Mr. Wallace K. Harrison [Honorary Corresponding Member], the chief architect of the United Nations Building who is making a special journey across the Atlantic to read his paper on the United Nations Building at the General Meeting on that date. The design of the United Nations Building has aroused tremendous interest amongst architects and Mr. Harrison's talk should add greatly to the interest already displayed. It is expected that there will be a large and overflowing attendance at No. 66 Portland Place on 20 February.

Housing Medals 1951

The Ministry of Health have announced (Circular 116/50) the conditions for the award of Housing Medals and Diplomas for 1951. The conditions are very much the same as those for 1950, the principal exception being that there will be in future two awards made in all Regions. The closing date has been fixed for 31 January in order that the awards may be made in time for the opening of the Festival of Britain.

Incentives in the Building Industry

A new agreement on incentives, made between the National Federation of Building Trades' Employers and the National Federation of Building Trades' Operatives, has been announced. Though not the direct concern of architects, this agreement will be of interest to them because it is likely to result in better production in the building industry. Although the settlement has only been reported to the National Joint Council for the Building Industry it is practically a foregone conclusion that it will come into effect. The terms of the published document make it clear that the incentives system is still experimental in the building industry, that improvements must be carried out by stages, and that any bonusing scheme is still a matter for the individual contractor and his operatives. Nevertheless, this new settlement makes an important advance beyond that of 1947 by which those contractors and operatives who could not agree were left to disagree. Under the new settlement, regional joint advisory panels are set up which, operating with the trades union district organizers, can bring gentle pressure in the form of expert advice and help, in cases of disagreement. The establishment of workable incentive schemes in so complex an organization as the building industry is anything but a simple matter. Architects will therefore appreciate the goodwill which is manifest in the two sides of the industry. The Minister of Works has warmly welcomed the settlement.

Architectural Qualifications in Australia

It would appear from letters received within the past few months from the Royal Australian Institute of Architects that several architects who have emigrated from this country to Australia have found on their arrival, somewhat to their consternation and disappointment, that the qualification of registration under the Architects' Registration Acts in this country is not sufficient to entitle them either to have their names placed on the Statutory Registers in some of the Australian States or to membership of the Chapters of the Royal Australian Institute of Architects. While, generally speaking, Associateship of the R.I.B.A. or a qualification obtained at one of the Schools of Architecture recognized for exemption from the Final Examination of the R.I.B.A. is accepted as a qualification for registration in Australia and membership of the Royal Australian Institute, members contemplating employment or practice in Australia are strongly advised to ascertain from the Royal Australian Institute whether their present qualifications are valid. The address of the Royal Australian Institute of Architects is: Barrack House, 16 Barrack Street, Sydney, New South Wales.

Productivity

The Ministry of Works have issued a memorandum on the report of the Working Party and the Anglo-American Productivity Team. For several months past the Minister and his National Consultative Council have been considering ways of putting into effect the recommendations of the Party and the Team, and action has already been taken or put in hand. Briefly, the position is as follows:

A new agreement on incentives for England and Wales has been announced. The allocation of structural steel is now free from control; modifications have been made in Town and Country Planning controls; the period in which licensed building work must be started is not now limited to two months from the date of the licence. Discussions have been concluded about the operation of building bye-laws in England and Wales, and the principles on which the Ministry of Health are conducting their review of model bye-laws have received the approval of the industry and the professions, and an examination is being made into the question of greater standardization in local authorities' forms of application for bye-law consent in England and Wales. Similar discussions are shortly to begin in Scotland.

The Ministry of Works are about to publish a booklet and leaflets on programming and progressing; demonstrations of plant for building have been planned for 1951, and a simpler procedure for meeting the cost of electrical power on building sites has been arranged with the British Electricity Authority, which should aid the use of power-driven tools. The present conditions of apprenticeship are under review.

The R.I.B.A. are working out a scheme for the practical training of architects on the site and in site offices, and—jointly with the National Federation of Building Trades Employers—are taking measures to impress on building owners the importance of deciding their requirements at an early stage, and of avoiding variations.

Following an examination of American practice in plumbing a memorandum is being prepared on the main features of good plumbing practices and their applications.

The Preservation of Historic Buildings

We have received a printed report of the Conference held by the Georgian Group at Leamington Spa last October. The purpose of the Conference was to consider the results of legislation enacted to protect historic buildings and to see whether and how it could be improved either by amendment of the law or by administrative reforms. Papers were read on *The Technique of Protection: Listing and Building Preservation Orders*, *Repairs to Listed Buildings: Financial and other Problems*, *Listed Buildings in their Setting* and *The Conversion of Terrace Houses: its Possibilities and Problems*. The resolutions passed by the Conference approved the present listing of buildings of special architectural and historic interest, but suggested that improvements be made in administrative methods, including a statement for building owners by the Ministry of Town and Country Planning on the purpose and principles of listing, that Building Preservation Orders should be made before buildings are actually threatened and that there should be more control of alterations. The recommendation of the Gowers Committee that a Historic Buildings Council be established was warmly approved. The Danish member of the Conference presented documents relating to the preservation of historic buildings in Denmark, which has been legally effective since 1918. Both the report and the Danish documents are in the R.I.B.A. Library.

Part of a panel in the Rubens ceiling, Royal United Service Museum, Whitehall, depicting 'The crowning of the infant Charles.' The panels have now been re-erected in the Museum by the Ministry of Works, after cleaning and restoration. Photograph, Ministry of Works.

The Architecture of Transport Exhibition

The R.I.B.A. Exhibition, *The Architecture of Transport*, is to be opened by the Right Hon. Lord Hurcomb, G.C.B., K.B.E., Chairman of the Transport Commission, and will be on view from 22 February to 22 March, 10 a.m. to 7 p.m., Saturdays 10 a.m. to 5 p.m. The exhibition shows the contribution made by the architect to that national co-operative activity which comes under the generalized heading of 'Transport'. It is in four sections namely, Road, Rail, Air and Water.

R.I.B.A. Diary

TUESDAY 6 FEBRUARY 6 P.M. President's Address to Students. Criticism by R. E. Enthoven [*F*], Presentation of Prizes.

TUESDAY 20 FEBRUARY 6 P.M. *The United Nations Building in New York*. Wallace K. Harrison [H.C.M.].

THURSDAY 22 FEBRUARY TO THURSDAY 22 MARCH. The Architecture of Transport Exhibition at the R.I.B.A. (see above).

TUESDAY 27 FEBRUARY (POSTPONED FROM 13 FEBRUARY) 6 P.M. A.S.B. Lecture: *Floor Finishes*. F. C. Harper, Ph.D., B.Sc.

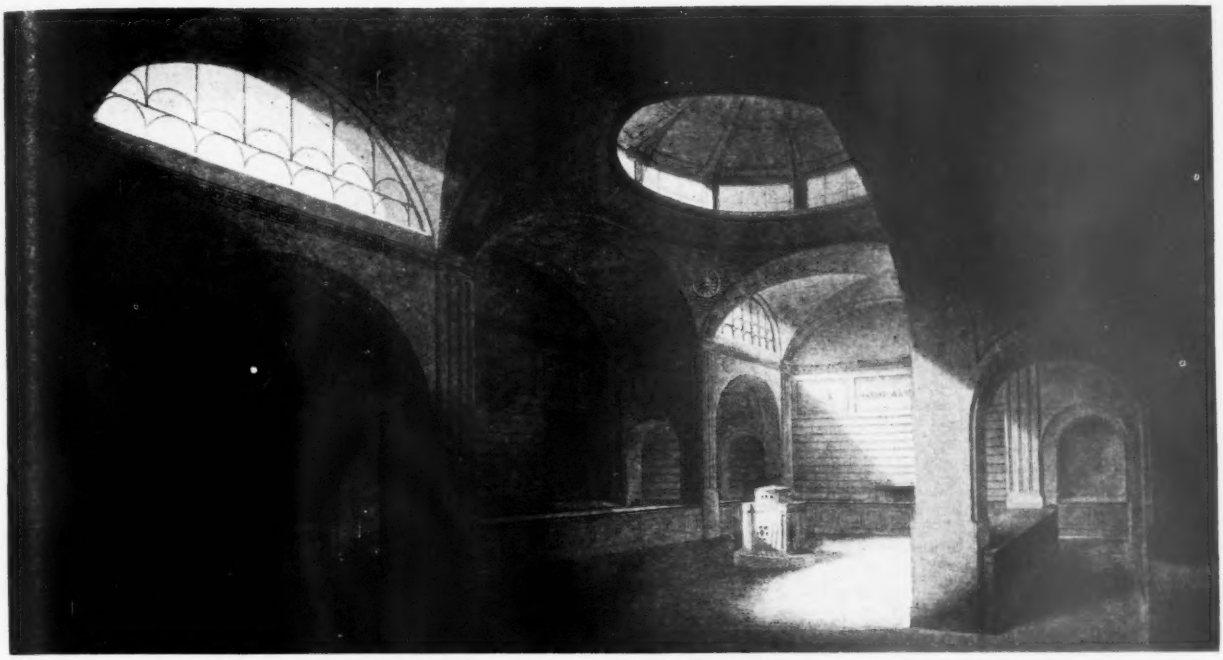


Fig. 1: The Bank Stock Office, Bank of England, by Sir John Soane, 1792 (Soane Museum)

Soane: The Case-History of a Personal Style

By John Summerson, B.A.(Arch.), F.S.A. [*A*], Curator of Sir John Soane's Museum

Read before the Royal Institute of British Architects 12 December 1950

The President in the Chair

SOANE'S PERSONAL STYLE—the style which first appears in the Bank Stock Office of 1792 and which its author continued to develop and expand for more than 40 years—is one of the curiosities of European architecture. Certainly, in 1792, there was not, anywhere in Europe, an architecture as unconstrained by academic loyalties, as free in the handling of proportion and as adaptable to new ideas in structure and lighting, as that which Soane introduced at the Bank of England. Yet this style is not, as is sometimes supposed, the simple creation of one man. It is the product of many influences at work within the English neo-classical movement and, in particular, the product of two artists—Soane himself, and his master and friend, George Dance.

As a preliminary to the study of this style it is necessary to map out, in a general way, Soane's phenomenally long career—probably the longest active career in the history of English architecture, extending as it does from his decision to be an architect at the age of 15, to his retirement in 1833 at the age of 80. Omitting the years of pupilage, first with George Dance (1768-70) and then with Henry Holland (from 1770 onwards, probably till 1778), Soane's career may conveniently be sub-divided as follows.

1. *Student Period*, 1776-80 (age 23-27).—Opens with the Triumphal Bridge (R.A. Gold Medal) design, showing the influence of Piranesi and M. J. Peyre. *Designs in Architecture*, published 1778, contains slight and affected studies for garden buildings in different styles, on the model of Chambers' book on Kew. Designs done during his stay in Italy, 1778-80, are influenced by French neo-classicism, and he discovers the Greek Doric order which he understands as a 'primitive' type of architecture. The Canine Residence design for the Bishop of Derry, with 'ancient' and 'modern' versions, foreshadows the duality of style in his later work.

2. *Early Practice Period*, 1780-91 (age 27-38).—Country houses, influenced by Wyatt and Holland, with immature experimentalism, uneasy proportions, marked lack of confidence and no sign, as yet, of the Soane style. The publication of these designs in *Plans of Buildings*, 1788, virtually marks the end of this phase and coincides with Soane's appointment as Surveyor to the Bank of England. His country house work, however, continues, with little advance towards maturity, for another three years.

3. *Middle Period*, 1791-1806 (age 38-53).—A confident and creative period. Recognition comes with official appointments to the Office of Works (1791) and the Office of Woods (1797) and election as A.R.A. (1795) and R.A. (1802). The main elements of the Soane style emerge rapidly in the following works : Wimpole (drawing-room), 1791-93; Bank Stock Office, 1792; No. 12 Lincoln's Inn Fields, 1792; Buckingham House, 1792-94; Tyringham, 1793-98 (gateway 1794); Bank Rotunda, 1796. *Sketches in Architecture*, 1793, includes a cottage design with 'proto-Doric' columns, forecasting the 'primitivism' which is formalized at Bentley Priory (1798) and Pitzhanger (rear elevation and gateway, 1800-02). Throughout most of this period there is evidence of close collaboration with George Dance.

4. *Picturesque Period*, 1806-21 (age 53-68).—The period opens with the intellectual effort involved in the preparation of R.A. Lectures from 1806. Almost complete absence of new invention, but the constants of the Soane style are re-combined and expanded to obtain new and picturesque effects, which Soane called the 'poetry of Architecture'. Gothic and Pompeian elements are absorbed into the style, and the æsthetic theories of Payne Knight and Uvedale Price were probably influential. Pic-

turesque top-lighting, originated for practical reasons at the Bank, becomes an essential of the Soane style. The Dulwich Art Gallery, No. 13 Lincoln's Inn Fields and the later Bank Halls are the chief works of the period.

5. *Last Period*, 1821-33 (age 68-80).—Mostly public works. The Law Courts (begun 1820) and Privy Council Offices (1824-27) show the ultimate development and expansion of the themes evolved in the Middle Period. In the Royal Palace Designs, the Scala Regia and Royal Gallery of the House of Lords, however, Soane returns to an academic expression, which although mixed with 'Soanic' details is no advance on his very earliest academic studies, such as the Bridge, Senate House and Palace of the student period.

Obviously, it is the Middle Period, 1791-1806, which is the crucial one for the analysis of the Soane style. Indeed, if we can determine how the Bank Stock Office of 1792 came to assume the form it did (Fig. 1), if we can satisfactorily explain that first astonishing manifestation of the style, our problem is as good as solved.

Let us, first, examine the conditions. There are three points to be observed. First, the Bank Stock Office was to be built on the site of the old Office, a site which was confined in such a way that no allowance could be made for any projections to provide additional abutment. Second, that whereas the old Office had been timber-roofed, the new building was to be as nearly fire-proof as possible and, therefore, vaulted. Third, the new building was to be top-lit. Among Soane's sketches, preserved in his Museum, are some indicating how he first proposed to meet these conditions. His first study (Fig. 2) is inspired by the classical type represented by the Basilica of Constantine and the Baths of Diocletian. This type meets the conditions satisfactorily, since the abutment of the main vault is taken into the building, and clerestory lighting is inherent in the cross-section. Such a solution we should expect from any neo-classically minded architect of the period. Soane's modifications of his chosen model, however, are interesting. Instead of heavily mullioned windows on the Roman model, he gives us complete glazed semi-circles—a modification which at once recalls a London building he knew well—George Dance's Allhallows, London Wall. This and two other buildings by Dance are so important to our purpose that we must digress to consider them.

Allhallows (Fig. 3) was Dance's first work, begun in 1765, the year after his return from Rome. It may justly be called the first strictly neo-classical building in Britain. It is neo-classical in its derivation from a Roman Bath prototype and neo-classical more particularly in the treatment of the order which, above cap level, consists of nothing but an enriched architrave. The omission, here, of frieze and cornice was a very daring innovation in 1765, and when Soane, as a young student, first saw the church he thought its architect guilty of an unaccountable misdemeanour.[1] The point of the omissions (as Soane, who was

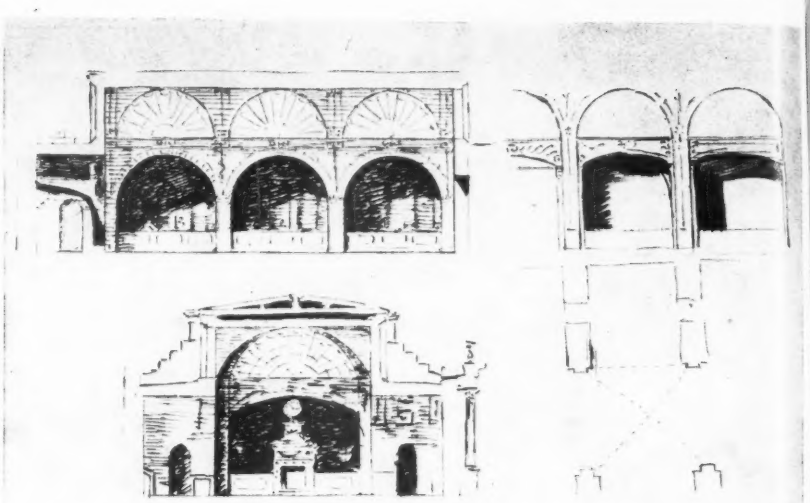


Fig. 2: Bank Stock Office. First and second designs by Sir John Soane, 1791 (Soane Museum)

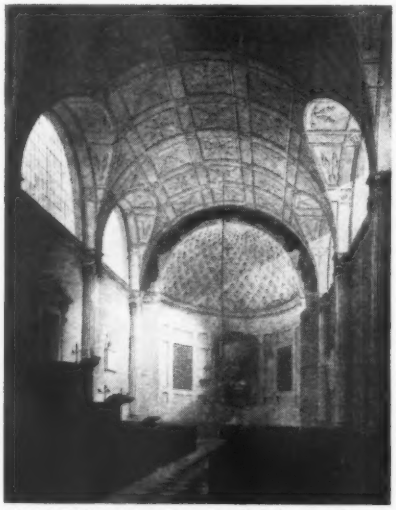


Fig. 3: Allhallows, London Wall, by George Dance, 1765 (Soane Museum Lecture Diagram)

Fig. 4: Guildhall Council Chamber, by George Dance, 1777 (*Microcosm of London*)

in Dance's office, soon learnt) is explained by neo-classicist theory, notably that of the Abbé Laugier, who insists on the 'functional' character of architrave and cornice and recommends the omission of cornices (being, in effect, eaves) in certain circumstances.[2] Dance, in fact, was here exploiting the Franco-Italian neo-classicism which he picked up in Rome and Parma. An important characteristic of that style is a tendency to omission. Here, indeed, is the beginning, in England, of that process of omission which Soane, Dance's pupil and friend, was to carry to such extremes.

Before returning to the Bank Stock Office, we must look at two other buildings by Dance which will be found to have a bearing on it. The first is the Guildhall Council Chamber (Fig. 4), built in 1777, a revolutionary building hitherto almost entirely overlooked by architectural historians, and one which forestalls a great deal of what we are apt to think of as original in Soane.[3] This Council Chamber (destroyed in 1906) was a square hall covered by a dome on pendentives with a central oculus (glazed), an arrangement rendered especially remarkable by the way in which the pendentives met the dome in flattened curves so that these, with the crowns of the arches, gave the base of the dome a 'scalloped' line, like the outer edge of an umbrella. The sources of this design are not at all obvious, and I have found nothing remotely suggesting it either in French neo-classicism or in late Italian Baroque. What is obvious, however, is that the design of the dome foreshadows the Soane style very clearly indeed.

The third Dance building is much closer to the Bank Stock Office in date—in fact contemporary with it—and so close to it in

Fig. 5: Sketch for *exedra* in Lansdowne House Library, by George Dance, c. 1791

Fig. 6: Mural painting at the Villa Negroni. Engraving by Angelo Campanella (Soane Museum)

style that we are bound to assume a complete identity of view between the two artists at this date. It must have been about 1792 that Dance was called in by the Marquis of Lansdowne to succeed Robert Adam (who died in that year) at Lansdowne House, to complete the great library, for which Adam had made provision in his plan. Dance's designs for this building (ultimately finished by Sir Robert Smirke, much later) are in the Soane Museum. They show a hall covered by a curved (segmental) ceiling, opening, at each end, into a domed space of the Minerva Medica type. Each of these domed spaces is sliced off, vertically, where it meets the hall; and since the domes rise higher than the ceiling between them there is accommodation in each for a great semi-circular window above ceiling level (Fig. 5). These windows light the domed spaces, without being visible from the hall.

Now the design of the junction between hall and domed space here is exactly comparable to the second of Soane's early sketches (Fig. 2) for the Bank Stock Office, the one in which there are semi-circular windows over segmental arches. What is the inspiration behind these designs? In Dance's case, the Minerva Medica is one obvious source, but in addition there is, I think, an indebtedness to a set of engravings of about 1777, of the decorations in the ruins of a Roman house in the grounds of the Villa Negroni[4] (Fig. 6). These decorations comprise theatric architecture of the kind familiar at Pompeii, including thin segmental arches suggestive of those in the Lansdowne House design. Both Dance and Soane possessed these engravings, and Soane certainly borrowed from one of them when decorating his Ealing house in 1801. They have, I suggest, an important bearing on the emergence of the Dance-Soane style in the 1790's.

The next step in the evolution of the Bank Stock Office was the recasting of the centre bay as a domed space, and the continuation of this space in two directions to form, in effect, a 'transept'. It is just possible that the first sketches[5] for this are in Dance's hand and the domed space, with its *oculus*, has an obvious affinity with his Guildhall Council Chamber. There was, however, another precedent, very near at hand, which from this moment will have affected the issue profoundly. This was the Reduced Annuities Office in the Bank itself, the last building contributed to it by Sir Robert Taylor, before his death in 1788 (Fig. 7).

The Reduced Annuities Office (demolished 1850) was a square hall with segmental wall-arches springing from piers composed of Doric columns.[6] One would expect this arrangement to carry a saucer dome, but instead of a dome there was a ceiling (apparently flat), raised over a circular clerestory of windows. For a rather stolid septuagenarian like Taylor, this was a startling innovation, for there was certainly no building in the London of 1788 lit in this way. We need not believe, of course, that it was necessarily Taylor's personal work. The real author may be guessed at[7], but that question need not trouble us here. We must assume that this mode of top-side lighting was arrived at empirically, as the solution of a peculiarly difficult problem which the lay-lights in Taylor's earlier buildings had failed to solve. In any case, Soane chose or was induced to adopt it, and it was to become an important element in the Soane style.

So the centre bay of the Bank Stock Office became, first, a domed space with an *oculus* and, then, a space with pendentives carrying a circular ring of windows and a flattish, conical ceiling. From this point, the elements of the executed design are all present.

The final version of the Bank Stock Office, however, is quite a lot different even from the latest preliminary sketches. The centre bay has been greatly enlarged and the aisles (what is left of them) pushed into the corners. The end bays have become oblong instead of square and are merely subsidiary extensions of the central space. Nearly all trace of the Baths of Diocletian has vanished, and we are presented with a building unclassifiable in terms of any known style. What has happened? Clearly, at some point, Soane decided that a building of this character, subjected to all sorts of practical exigencies, could be liberated completely from classical standards of proportion. The collaboration with Dance, which undoubtedly took place in the earlier stages, carried him some way towards this point, but I suspect that the last step was taken by Soane himself. I suspect this because I believe that the matter of proportion is, in the last resort, a matter of personality, and in Soane the capacity to recognize intuitively an equilibrium of ratios was very weak, or, perhaps one should say, distorted. Proportion did not bother him. He accepted Laugier's statement[8] that it must necessarily be a question for the individual judgment, and had no patience with attempts to crystallize it theoretically.[9] The result was that the proportions of his own buildings are free, personal and, since his mind was not one of those which constantly seek the harmony of classicism, unclassical. This is shown, over and over again, in the early houses. Wherever proportion is not dictated by the modules and intercolumniations of an order, Soane's proportions stray. They

stray, it must be confessed, sometimes into that meanness and 'creepiness' which characterize the least lovely of his works.

Few critics would consider the proportions of the Bank Stock Office as 'happy'. They are unclassical—even chaotic. But that is the condition of the building's freedom; and in this uneasy freedom Soane discovered his style. Look now at the ornaments. There is, of course, no classical order; no order could possibly master a composition of such froward and unruly proportions. There is no classical order, but there is a substitute, a token order consisting of vertical strips in relief, in the places where columns or pilasters might be expected to occur. These pilaster-strips play a very important part in the Soane style, and I shall show later that they are symptoms of a 'primitivism' to which Soane subscribed and which will have been connected, in his mind, with the neo-classical thesis that the bed-rock of architecture is, not the canon of the orders, but the primitive hut in which the orders and their parts have their prototypes.

Apart from the pilaster-strips, and the fretted string-course which is a 'token' entablature, the ornament in the Bank Stock Office consists only of delicate plaster panels introduced on the walls and the soffites of the arches, scorings on the spandrils, and *paterae* in appropriate positions. These are simply the devices of a classically trained architect to give the whole composition a textural conformity and a sense of punctuation.

When all the elements of the Bank Stock Office have been accounted for and when, in addition, allowance has been made for the fact that the vault is constructed of hollow fire-clay pots necessitating the greatest possible reduction of mass, an inexplicable something—the building's *temperament*—yet remains. That, in any work of art, is the central mystery; it is the mystery of personality, which is also the mystery of style. It can never be wholly isolated and will certainly not be explained until we can explain personality.

The Bank Stock Office is the first building in which the Soane style is completely manifest. The result, obviously, was arrived at with great difficulty; with much help from Dance in the early stages and painful effort by Soane later on.[10] In a sense it is the key building of his entire career. Almost all the later examples of the Soane style are related to it in one way or another, and, indeed, I can think of no better way of elucidating Soane's later development than by proceeding directly from a consideration of the Bank Stock Office to some of the buildings of his fourth period, the period I have designated 'Picturesque'.

Soane's 'Picturesque' period starts very approximately in 1806 (when he was 53) and goes on for some 15 years. I call it 'Picturesque' because I think his work during this period is strictly analogous to that of the landscapists and theoreticians of the Picturesque school. Some remarks in the Lectures tend to confirm this and we have, in the Soane Museum, annotated copies of Uvedale Price's and Payne Knight's books[11]

Fig. 7: Reduced Annuities Office, Bank of England, by Sir Robert Taylor, c. 1788 (T. Malton)

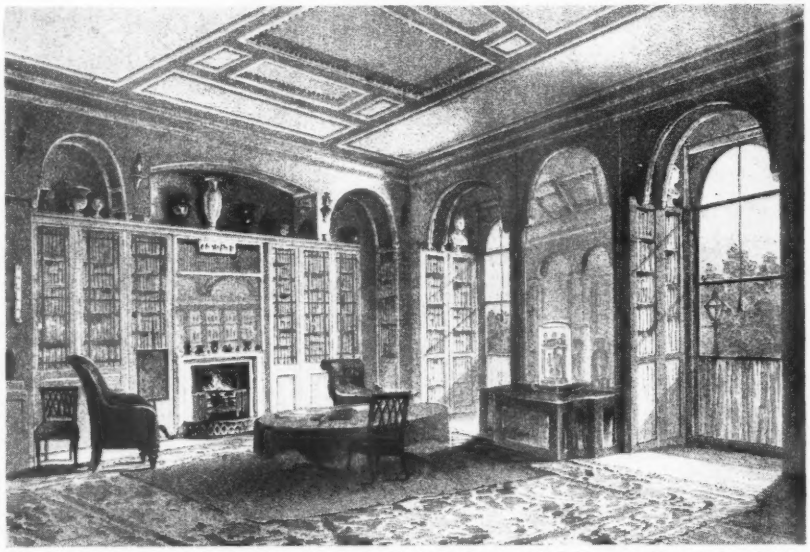


Fig. 8: Library at 13 Lincoln's Inn Fields, by Sir John Soane, 1812 (Soane's *Description*, 1832)

which show how closely Soane attended to their ideas. It was in 1806 that Soane was elected Professor of Architecture at the R.A. and started on the course of reading and note-taking which equipped him for the lectures he delivered from 1809 onwards. This intensive study greatly widened his horizon and, belatedly, induced him to think of his own style as one uniting the potentialities not only of different kinds of classicism but of Gothic as well. Soane never liked building in Gothic[12] and was hideously clumsy in his few Gothic attempts, but he passionately admired Gothic *effects* and tried to bring them within the capacity of his own style. Gothic effects and Picturesque effects were to him synonymous; they were the 'poetry of architecture' which he speaks of in his own description[13] of the Breakfast Room at the Soane. He identified them, equally, with the effects produced by Vanbrugh, who was his great hero among English architects of the past, the 'Shakespeare of architects.' So from 1806 we find Soane playing a curious intellectual game with the discoveries he has already made, pulling his pet motifs apart; expanding or compressing them and recombining them in very deliberate attempts to produce the kinds of moods associated with Gothic or with the Picturesque handling of landscape.[14] These attempts were by no means always successful; but they are often profoundly interesting.

One important thing to notice is that after 1806, or indeed, several years before,

Fig. 9: The Soane Tomb, old St. Pancras Church-yard, by Sir John Soane, 1816 (Soane Museum)

Fig. 10: Freemasons' Hall, Great Queen Street, by Sir John Soane, 1826 (Soane Museum)

Soane invented no new themes. Certainly, all the work after 1806 can be accounted for in terms of the motifs introduced between 1792 and that date. They may be distorted or rearranged in new ways, but they are the old themes, and the old themes alone.

This re-interpretation of thematic material is most strikingly illustrated if we pass at once from the Bank Stock Office of 1792 to the Soane Museum Library of 1812 (Fig. 8). In this room Soane has introduced a quasi-Gothic element in the hanging arches on the north and south sides. These arches—a wide segmental arch between two semi-circular arches, in each case—may seem to be an echo of the section of the vault of Henry VII's Chapel, which Soane, in common with most of his contemporaries, greatly admired. But they are also a miniature edition of one side of the Bank Stock Office! Not only is the combination of segmental and semi-circular arches roughly the same, but, the 'pendants' of the ceiling arches are the piers of the Stock Office and, like the piers, are pierced by round-headed openings.

This combination of segmental and semi-circular arches recurs often in Soane's later work. Arrived at under pressure of circumstances and after intense effort, at the Bank, it became part of Soane's architectural vocabulary and sprang into his mind repeatedly thereafter. His was not a fertile mind. The few novel combinations which he did, with Dance's help, arrive at in his middle years, served him over and over again in the solving of problems which other, less restricted, minds would have seen from a fresh angle altogether.

Take another example. No single feature of the Soane style is more conspicuous or memorable than the domical ceiling on segmental arches with an *oculus* and a circular lantern. This, as we have seen, was arrived at under the very special conditions imposed at the Bank. But so forcibly did its novelty and charm impress its creator that there are few of his major buildings in which it does not, somewhere, somehow, occur. Indeed, there was one example where it was treated in a fashion exactly analogous to the hanging arches in the Soane Dining-room of which I have just been speaking. This was the Freemasons' Hall in Great Queen Street, built in 1826 (Fig. 10). Here a reduced 'model' of something like the Stock Office dome was suspended canopy-wise in the middle of a flat ceiling. Again, I think, the idea was, quite consciously, to try to obtain a Gothic effect with means drawn from the classical vocabulary. Incidentally, the scale model for this ceiling, in the Soane Museum, is built into the lantern over the dressing-room and *forms part* of the lantern. I imagine that Soane had observed how, in Gothic architecture, the whole principle of ornament is the reproduction of structural features in miniature, and that he attempted, from time to time, to introduce this principle in his own work.

Certainly he had no hesitation in employing his favourite dome-motif on any scale, from the vast to the minuscule. It occurs, without the *oculus*, in the front parlour of Pitzhanger Manor, Soane's country home at Ealing (1800-02), and, with an *oculus* and lantern, in the Breakfast Parlour at the Soane Museum (1812). In both these domestic examples the scale is much reduced; and it is reduced still further when the motif passes from positive to negative and is employed on the covering of the lantern of the Dulwich Mausoleum (1811-14) or as part of the Soane tomb (1816) in Old St. Pancras Churchyard (Fig. 9). In these two last cases, you will notice that the inner surface of the dome becomes an outer surface; in fact, that the examples are modelled on a hypothetical 'cast' of the interior of the Stock Office dome, the lantern becoming (in the case of the Soane tomb) a solid cylindrical projection on the summit. These miniature 'negatives' of the theme are reduced even further in the case of the gate-piers at Pitzhanger and here they have become something very like the lids of those antique cinerary urns which Soane was just then (1802) beginning to collect. The motif thus receives a comfortable confirmation that it is still in the spirit of the antique.

Soane's domes do not always follow the Stock Office pattern. He remained equally attached to the type of dome which Dance had introduced at the Guildhall and which he himself had begun to use as early as 1789. It is, structurally, no different from the Stock Office dome, though the humped articulation of the spandrils gives it a different look. He used it in the house he built for William Praed at Tyringham in 1798 (Fig. 12). Here, we find it in the so-called 'tribune', a vestibule opening into the first floor and lit from a roof lantern. The general idea comes, I imagine, from Henry Holland's octagon vestibule at Carlton House, but at Tyringham the first-floor opening is an *oculus* in a domed ceiling on the Dance pattern, while the oval lantern takes after the Bank. This is one of the creations of Soane's middle period which he continued to expand and elaborate and which finally, in the most intrepid expansion of all, becomes the Court of Chancery at Westminster (Fig. 11). In this, one of Soane's very last works, the expansion of an old theme is stretched just as far as it will go. The arches of the dome are drawn out to an exceedingly flat five-centred curve, while the *oculus* is so large as to dispose of all the dome except the confluent spandrils which become little more than the shaped soffit of a circular cantilevered gallery. The arches hanging from the ceiling are related to the hanging arches in the Museum dining-room and thus again (though here remotely) to the Bank Stock Office. The interior as a whole is the most dramatic and surprising of Soane's conversions of the themes of the seventeen-nineties. It underlines again his inability to invent new themes after a certain date and his absolute reliance on those which had become an integral part of his stock of ideas in the period when Dance was so often at his elbow.

I mentioned earlier the 'primitivist' element which is so important a factor in the Soane style. It makes its first appearance in a design for a dairy, given in his *Plans* of 1788. Then, in the *Sketches in Architecture*, published in 1793, are a number of designs for cottages, some of which have loggias or porches, built of

rustic-work, or as Soane describes one of them, 'trunks of trees decorated with woodbines and honeysuckles' (Fig. 13). This 'natural' architecture was already in vogue; there are earlier specimens among the Adam designs in the Soane Museum, and it is related, I think, not to any real vernacular practice, but to the primitive hut described by Vitruvius and construed by later writers as the prototype of all architectural forms. Laugier[15] lays particular stress on the hut as the fundamental embodiment of architectural principles and in the English translation of 1755 is a charming frontispiece showing the hut in process of erection by a team of savages.[16]

In the pair of cottages of 1793 the primitive order is shown with the bark still on the trunks, but cut away at the caps under the square abacus, giving a retracted necking. This form Soane proceeded, a few years later, to translate into other materials—first into flint, then into brick, with successive refinements of detail. A design for a Park Entrance, about 1794 (Fig. 14), shows flint pilasters and a primitive 'entablature' with brick 'triglyphs' under the eaves.[17] In the gateway (c. 1801) at Pitzhanger, the piers consist of coupled flint pilasters with a retracted 'frieze' over each pair and, above that, a capping which is both an antique sarcophagus lid and a model of the Stock Office dome. It is noticeable that, as the 'primitivist' style develops, the elements of it—the token bases, caps and imposts—become more and more refined.

The 'primitivist' style reaches its full development in one of Soane's most individual buildings, the Dulwich Art Gallery of 1811-14 (Fig. 15). Here was a case where a building of monumental character was required, but where the funds were extremely limited. The site was in a country setting and Soane at this period was under the spell of the Picturesque; so it was natural that he should bring his primitivist order into play. It is in stock brick, with a retracted stone frieze and a rudimentary stone cornice. It finds expression in the wings of the building and again in the Founder's Mausoleum and is used much as one of the Palladian orders might be used, but with a greater freedom of proportion, and a very striking freedom of composition which we must attempt to account for.

The composition of Dulwich is markedly personal. It owes nothing to any buildings of Soane's time or of a considerable period previous to it. The long, high central block and wings, the quasi-detached mausoleum, the lower 'inset' apartments and the loggia at the rear—all these are put together in a most original way, which, at first sight, baffles explanation. What was Soane's inspiration here? I am going to suggest, though without complete assurance, that it was the work of Sir John Vanbrugh. Vanbrugh is the hero of two different sections of Soane's lectures. In the lectures first read in 1809 he gave him, as we have seen, 'the high distinctive appellation of the Shakepeare of Architects.'[18] In the later lectures (1815) he returns to the subject. 'For Invention', says Soane,[19] he 'has had no equal in this country. Boldness of Fancy, unlimited

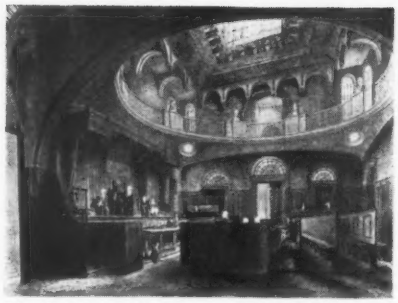


Fig. 11: Court of Chancery, by Sir John Soane, 1830 (Soane Museum)

Variety, and Discrimination of Character mark all his productions. . . . The young Architect, by studying the picturesque effects of his works will learn to avoid the dull monotony of minor Artists, and be led to think for himself and acquire a Taste of his own.' He goes on to talk about the 'variety in heights as well as in projections' characteristic of Vanbrugh, and it is clear that the feeling he discovers in Vanbrugh is very much his own feeling about composition at the period when the lectures were written—which is also the period of the erection of the Dulwich Gallery.

I feel sure that the general balance of parts at Dulwich and especially the minor recessions which give a sort of detachment to each component element of the whole, derive from Soane's appreciation of such works as Seaton Delaval and Grimsthorpe. Dulwich has that 'variety in heights as well as in projections' which Soane so particularly admired in Vanbrugh, and it would be hard to think of any other building of Soane's time which has that quality.

The Mausoleum, an integral part of the Picturesque whole, requires, in itself, a little further analysis. The interior arrangement, consisting of a circular Greek Doric vestibule abruptly joined to a tomb-cell, brilliantly lit through an opening in its domical ceiling (Tyringham again), was worked out in 1808 for Bourgeois' private mausoleum in Charlotte Street, Portland Place (now Hallam Street, just behind the R.I.B.A.). There, it was squeezed into a back garden and had, to all intents and purposes, no exterior. Transferred to Dulwich, the question of its exterior expression at once arose. I think Soane took a hint here from Robert Adam's remarkable church at Mistley[20] with its twin towers, and this is rather confirmed by the fact that the first Dulwich plan shows twin mausolea, one on each side of the central block—one of them being in reality an entrance hall.[21] Finally, at Dulwich, there is the lantern over the mausoleum, a little cage of light, whose tensions are emphasized by thin incised lines in the masonry, a feature for which Soane is always remembered and sometimes mocked. Those lines, like so much else, originate not with Soane but with Dance. Dance invented them; they occur on a drawing for a fireplace in the Lansdowne House Library, about 1792, an 'Egyptian' fireplace obviously inspired by Piranesi.[22]

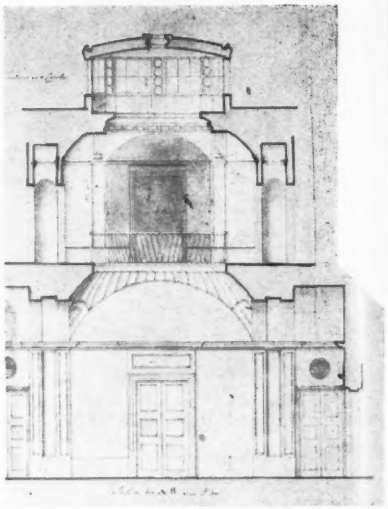


Fig. 12: Section through tribune, Tyringham, Bucks, by Sir John Soane, 1793 (Soane Museum)

Piranesi has, I suspect, something to do with the invention of this kind of decoration, although none of his incised lines ever end in a Greek fret. But it is Soane who was responsible for its subsequent widespread use—and misuse, its introduction to the west country by his pupil Wightwick and its employment by countless masons and joiners in every part of Britain.

From Dulwich, which I personally regard as the quintessence of the Soane style and the apex of his achievement, we must return again to the 'nineties and examine yet another Dance-Soane theme, this time the 'star-fish' ceiling. In Soane's work it first appears in the ground-floor back parlour of his first London House, No. 12 Lincoln's Inn Fields, built in 1792, but Dance seems to have used something very like it in his Chamberlain's Court at the Guildhall,[23] five years earlier, while the pattern was used as a flat ceiling design in the 'Alambra' at Kew, built in 1756 and engraved in Chambers' book.[24] The prototype of the whole series is, no doubt, an engraving by Santo Bartoli[25] of the ceiling of one of the Etruscan tombs at Corneto.

Dance perhaps, and Soane certainly, saw in this pattern a touch of Gothic romance, the flying lines from the corners to the centre giving a faint idea of a ribbed vault. In Soane's work it begins as a flat pattern on a low domical ceiling, but later is articulated as a cross-vault with double groins. As such it appears in the Pitt Cenotaph of the National Debt Redemption Office (1818-19). But it makes its most volatile appearance in the Privy Council Chamber of 1824 (Fig. 16). Here, it is introduced as a sort of canopy, with daylight filtering in at the edges. This is the same daylighting device which Soane used first in the Soane Museum Breakfast Room of 1812, but it goes back to the indirect lighting of the *exedrae* in Dance's Lansdowne House design. Possibly it originated in the

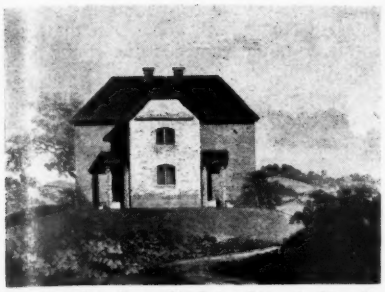


Fig. 13: Plate from Sir John Soane's *Sketches in Architecture*, 1793

lumière mysterieuse of certain French churches which Soane mentions approvingly in his lectures.[26]

I have now drawn your attention to five separate themes belonging to Soane's creative Middle Period and shown how he developed or expanded them in his later Picturesque period. This method of exposition suggested itself while I was working on the material as being the only one which would effectively illustrate what seems to me the most significant fact about Soane's working career, namely this: that the Soane style was evolved rapidly and completely within a few years, when Soane was aged, say, 38-45 and when he had the advantage of frequent discussion with and help from George Dance. Everything before that period was either academically derivative or feeble and affected; everything afterwards depended on the half-dozen or so themes of the creative period. These were combined, expanded, converted, inverted and modified in all sorts of ways, but not a single new theme was added to their number. Soane became the prisoner of his own style.

Of the extent of Soane's debt to George Dance there is not the slightest question, and in the case of a Soane building of the 1790's, which I have not mentioned, the Rotunda at the Bank of England (1796), we have documentary proof of it; for Soane preserved[27] some little scribbles of a domed interior clearly related to the Rotunda, on one of which he wrote 'Sketch by Mr. G. Dance'. Now, I am not suggesting for a moment that any of Soane's architecture is George Dance *sous clef*. It is not; it is something quite different, with the unmistakable Soane temperament. Indeed, the master may, in his later work, have owed something to the pupil for, in a letter[28] of 1802 he writes: 'You wou'd do me a great favour and a great service, if you wou'd let me look at your plan of Mr. Praed's house, I want to steal from it.'

What is beyond doubt, however, is that the style which we all know as the Soane style is the work not of one man but of two.[29] Sir John Soane would not have denied this for a moment, for in his lifetime he never ceased to acknowledge his indebtedness to his 'revered master.' There stands today, in the Soane Museum, the great chest which Sir John designed to enclose his collection of George Dance's drawings. It is sometimes observed that it looks like a sarcophagus. It is also very like a shrine.

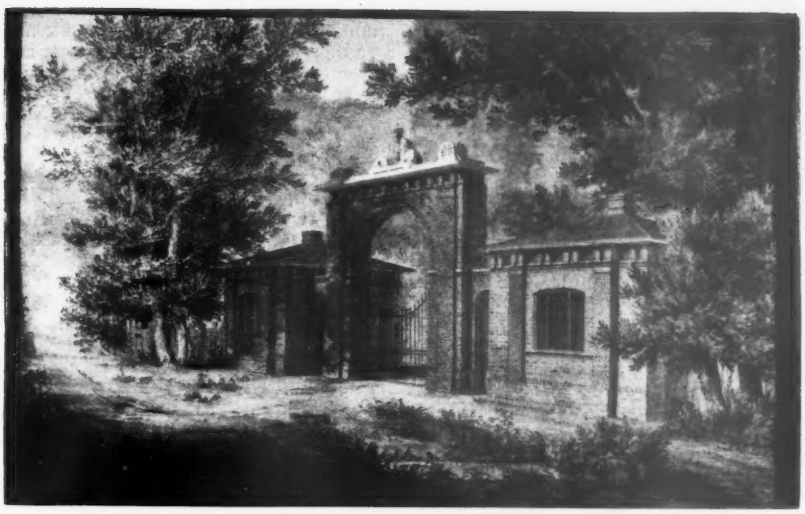


Fig. 14: Gateway to a Park. Design by Sir John Soane, c.1794 (Soane Museum)

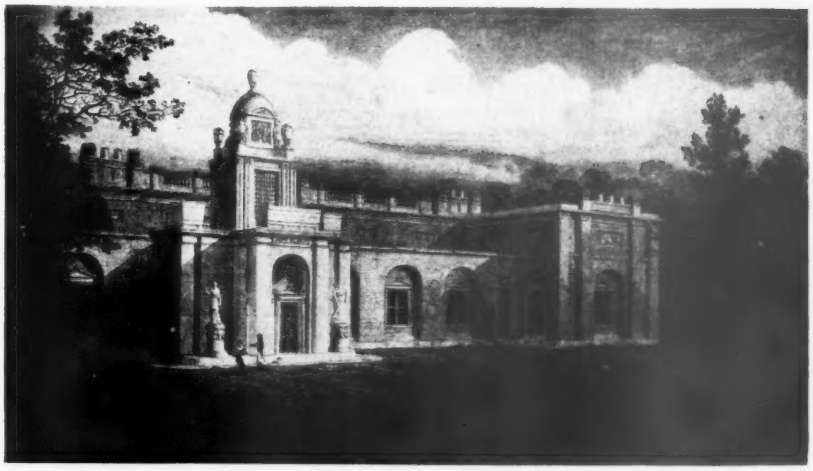


Fig. 15: Dulwich Picture Gallery and Mausoleum. Preliminary design by Sir John Soane, c. 1811 (Soane Museum)

DISCUSSION

The Right Hon. Lord Macmillan, G.C.V.O., LL.D. [*Hon. F*]: That eminent Englishman, Dr. Samuel Johnson, once said that one of the least attractive characteristics of the nation to which you and I, Mr. President, belong was that one Scotsman always will bring in another. It must be, I think, to that national characteristic that I owe the pleasure and privilege this evening of proposing the vote of thanks to Mr. Summerson. We architects (I think I am entitled to include myself among them now) owe a very great debt of gratitude to Mr. Summerson. I am well able to testify to his great gifts and attainments, for it is my good fortune to be one of the life trustees of the Soane Museum, which is very greatly indebted to Mr. Summerson for the many improvements which he has made since he assumed the office of Curator.

I am very far from being capable of appraising the technical aspects of the learned address to which we have just listened, so I am not going to trespass upon the province of the learned Slade Professor who is to second this vote of thanks. He can no doubt descant upon the more technical aspects of the paper, but, as a layman, I may surely be permitted with you to admire the plan and elevation of the paper. I use the word 'elevation' in all senses of that term. Mr. Summerson is expert in interpreting his art to the lay mind. Very often the expert is in a dungeon of learning from which he seldom emerges, but the public of this country have learned to look to Mr. Summerson as the interpreter of the art of architecture to them, and in his broadcasts and lectures and in

many other ways he is rendering to your profession a very great service.

All the great arts are allied. I think it was Soane himself who talked of the poetry of architecture, and we hear of architecture being frozen music. There are three arts embraced in those two sentences —poetry, architecture and music—so there is one great link between all of us who find pleasure in beauty and grace. One of the tragic things of this time is that, in the growing materialism of the age, we seem to be losing the sense of graciousness and beauty. This evening in Mr. Summerson's company we have been privileged to step back into a period when beauty and graciousness were indeed practised.

Sir John Soane has interesting associations with your Institute. The old Act of Parliament which established the Soane Museum was passed in 1833, and is a quaint piece of early legislation. In 1834 your Institute was founded. Sir John Soane was one of those who took an active part in the founding of your Institute, and, as you know, his memory is preserved in the Soane Medallion, which is awarded to distinguished students of your profession. I believe that in the Soane Museum there is preserved a copy of the first year's Minutes of the Institute of British Architects. Therefore in a way Sir John Soane forms an interesting link between the 18th and the 19th centuries. His death occurred soon after 1834, but his work was continued by the Institute which he had so important a share in founding.

Therefore Mr. Summerson, now the Curator of the great Soane collection, in addressing you here in the Institute's hall, has performed a duty of piety as well as giving us a great pleasure. I am sure you will all join with me in according him the heartiest vote of thanks.

Dr. Nikolaus Pevsner: It is very easy to second this vote of thanks, but it is very difficult to do more than that. I can not tell you how greatly impressed I was with Mr. Summerson's brilliant account of the personal style of these two artists belonging to two different generations but both to a period of drastic change in European architecture and European thought. All that I can try to do is to comment on one or two points that occurred to me while I was listening to the paper.

The first of them is the fact that during the 1770's George Dance was doing the thrilling kind of work which reappears in Soane's from 1791 or 1792 onwards, but Soane was doing something very different—the sort of thing which has been called this evening academic. While, of course, it is academic in the sense that it is based on drawings which Soane first did for the Royal Academy in London and also in Italy for the membership of other academies, it is not, I should say, academic in the sense which most of us would attach to that word now, because, although when Soane looked back to these motifs in his later life they had probably by then become academic, when he actually designed the Triumphal Bridge and the Canine Residence they were, I think, completely revolutionary work. Their style was, as Mr. Summerson said, based on the work that was done by young French architects and by those who were actually working at the Academy of France in Rome, but they again were not what one would call academic; they were the young and the innovators. The connection of Soane with their style is an interesting and important fact, at which Mr. Summerson hinted.

With regard to Soane's capitals, which are not capitals at all but are in fact a reduction in width as against the pilasters below, could not that be connected with the same motif in Michelangelo in the 1520's, where there is the same paring off and narrowing? I do not know how far there is a possibility of connecting the two, nor do I know how far there is a possibility of connecting tree-trunk primitivism with the earliest tree trunk that I know of, which is Bramante's tree trunk in the cloister of St. Ambrogio in Milan.

Professor R. Wittkower: The problem of Soane is, of course, immense, and Mr. Summerson has given us some idea of the complexity of this problem. All sorts of ideas come to one's mind, and I must say frankly that I always dreaded the idea of studying Soane, because of the complexity of his architecture, but there is one point on which I should like to comment.

Mr. Summerson said that he was not quite sure where the motif of the ceiling of the Guildhall Council Chamber by Dance came from, but I think the probable origin of this peculiar type of ceiling is Piedmont. That may sound strange, but Piedmont played a very great role in the architecture of the 18th century. Piedmont was at that period the most prominent State in Italy, from the cultural point of view. Everyone who went to Rome or to Venice had to pass through it. The Academy in Piedmont played an enormous part in the culture of Italy, and many Englishmen studied there for a year or more. Architects in Piedmont, such as Juvarra and Vittone, played a greater role beyond the boundaries of their own country than is usually known, and there are distinct motifs in the architecture of Soane which are reminiscent of Piedmontese architecture. For instance, the motif in the breakfast-room of the Soane Museum, with the use of mirrors in the pendentives, is similar to the opening up of the pendentive in Piedmontese architecture. Again, the 'Byzantine' effect of Soane's domes is already anticipated by a number of domes in Turin. This represents a complete anticlimax or reversal of the whole idea of dome structure. Consider for a moment the history of dome construction. During the 15th century there was always a tendency to emphasize the height of the drum. The dome of Juvarra's Superga in Turin might be considered the climax of this movement; the anticlimax appears immediately in the same circle, and here we find also the very large openings of the lantern so typical of Soane's architecture.

Therefore I want to submit to you that probably Dance, in the first place, and Soane, in the second place, were impressed in some way or other by the Piedmontese architecture, which in their time played a very great role in Europe, and that they combined the ideas which they found there with their own ideas, which were very largely rooted in the English tradition.

Mr. R. Furneaux Jordan [*F*]: I like to think of Soane as an experimenter, as one breaking away from the classical manners of his own academic period and from the work of his masters and predecessors, though it is true that he looked to Dance and back to the Roman tradition. I think of Soane as one who was struggling to escape from the technique of his time and who, if he had lived today, would have kept people very busy indeed with experiments in prestressed concrete. I also like to think of Soane as one who, as Mr. Summerson said, departed from the conception of a room as a box and thought of it as something flexible, full of colour and glitter, and as one who, in his early work, struggled above all to let in the light. Therefore it is that, on behalf of the middle of the 20th century, across more than 100 years of time, I salute John Soane.

Mr. D. H. McMorran [*F*]: In the case of the Council Chamber of the Guildhall, Mr. Summerson drew attention to the intermediate pendentives, and we saw the same motif, I think, in the Freemasons' Hall designed by Soane. I think it would be a mistake to attach too much importance to that motif, because it struck me that it was purely a decorative line produced with pendentive shape, that there was no change in the structure of the dome.

I should like to ask whether Soane, in admiring the work of Vanbrugh, was able at that time to distinguish between the work of Vanbrugh and the work of Hawksmoor.

Mr. John Summerson (in reply): I should like to thank Lord Macmillan for his very kind words, and I should also like to thank the other speakers, slightly less heartily than I thank Lord Macmillan, because they asked questions! I will try to answer very briefly those questions which I can answer, but some of them puzzle me as much as they have evidently puzzled the people who asked them.

I accept Professor Pevsner's correction about the use of the word 'academic', which I threw in on the spur of the moment and applied to Soane's fully classical designs.

With regard to what I call the 'retracted' capital, I agree that there is a hint of Michelangelo in it. Of course, if one shaves off the bark at the top of a tree trunk, so that it makes a connection with the abacus, that also forms a retracted necking. If it comes from Michelangelo, I suspect it might be through Piranesi's *Parere su l'Architettura*.

Professor Wittkower's suggestion regarding the Piedmontese origin of the particular kind of dome on the Guildhall Council Chamber is extraordinarily interesting, and it would be much more so to me if I knew a quarter or even an eighth as much as Professor Wittkower knows about Piedmontese architecture. I have not heard

of the architect named Vittone, and I doubt whether anybody else here has, but one interesting point occurs to me. When I was searching for this theme, the only instance that I could find was in the work of Guarini. In San Lorenzo in Turin, Guarini uses intersecting parabolic arches in the dome, and where these parabolic arches intersect at the opening of the lantern there is precisely that shape, and I can imagine that an architect working in Piedmont much later, under the influence of Guarini, might well re-discover that shape and reproduce it in another context.

Mr. McMorran suggested that we should not attach too much importance to that shape, and he pointed out, quite rightly, that there is no structural necessity for the hump in the spandril; it is not a structural characteristic; the dome leads straight on from the pendentive to the dome proper; it is all in one plane and therefore the line is a purely decorative one. I feel myself that it is one of the many things which one comes across in the history of art that look so easy once they have been done, but, if you cast your mind back to a designer working in the 1770's, and think of the work of Adam and Sir William Chambers, you will probably agree that the introduction of this particular shape, even though only as a decorative device, was an extraordinary novelty.

Mr. McMorran asked whether Soane could distinguish between Vanbrugh's work and Hawksmoor's work. I do not think he could, and I do not think he tried to do so; nor can anyone do so now! It is one of the outstanding problems of the history of English architecture.

BIBLIOGRAPHICAL REFERENCES

[1] *Lectures on Architecture*, ed. A. T. Bolton, 1929, p. 53 (Lecture 3).

[2] Actually, the omission of frieze and cornice at All-hallows represents an extension of the theory, for Laugier applies it only to the lower order in the case of superimposed orders. Dance is conforming with the principle involved. Laugier's *Essai sur l'Architecture* was first published in Paris in 1753, without the author's name. The second ed., 1755, gives the author, and in the same year appeared the English translation, without the author's name and rather inexpertly done. The passage concerned here is on p. 42 of this edition, of which there are five copies in the Soane, with two copies of an edition of 1765 and four copies of various French editions.

[3] I have checked the date of this building by inspecting the Minute Books of the City Lands Committee, with the kind permission of the Records Officer. Unfortunately, there are no drawings of the Council Chamber either at Guildhall or in the Soane Museum.

[4] A set of eight hand-coloured engravings by Angelo Campanella.

[5] These and other early sketches in the Stock Office are pasted in an album entitled, on the spine, *Original Sketches: Miscellaneous Architectural Subjects Chiefly by Sir J. Soane*, 1776-1798 (Soane case, Shelf C).

[6] H. R. Steele and F. R. Yerbury, *The Old Bank of England*, 1930, pp. 10 and 27.

[7] He may, I think, have been Thomas Malton. In the year after Taylor's death, 1789, Malton produced a magnificent series of aquatints illustrating his work, a series which could hardly have been produced by somebody not already associated with the office. Now Malton, in 1784, had exhibited at the R.A. a 'Design for a Bath' (Fig. 3), which I am inclined to identify with a hitherto anonymous drawing in the R.I.B.A. library. It has all the essentials of the Reduced Annuities Office except the circular skylight.

[8] *Essay*, 1755, p. 121. 'There is nothing but the natural taste joined to great practice, which assuredly guide the architects in this dark road'.

[9] In Lecture 6 (written about 1809) Soane condemns theories of proportion as 'neither applicable nor useful'.

[10] Soane was acutely conscious of his own difficulties. 'Architecture is an art purely of Invention (as opposed to Imitation in painting and sculpture), and Invention is the most painful and the most difficult exercise of the human mind'. (Lecture 7.) This is one of the few passages in Soane's writings which seem to allude to the originality of his own work. He never, as Robert Adam did, described or analysed his own style.

[11] U. Price, *Essay on the Picturesque*, 1794, and R. Payne Knight, *An Analytical Enquiry into the Principles of Taste*, 1805.

[12] Nor did he consider that modern Gothic had captured any of the magic of the old. 'The beauties of (our ancient structures), if felt, are certainly not often transferred into modern buildings.' (Lecture 8.)

[13] *Description of the House and Museum . . . the Residence of Sir J. S.* Privately printed, 1836, p. 54.

[14] 'Why should we not unite the variety of figure, the wild effects, the bold combinations of cultivated Art, with all the regularity displayed in the Ancient Architecture?' (Lecture 10.)

[15] *Essay*, 1755, p.

[16] It was perhaps this frontispiece which prompted Sir William Chambers to illustrate the primitive hut in his *Treatise* of 1759.

[17] This entablature is, no doubt, suggested by the engraving of 'the second sort of Huts' in Pl. 1 of Chambers' *Treatise*.

[18] Lecture 5. (Bolton, p. 90.)

[19] Lecture 11. (Bolton, p. 175.)

[20] Soane would know this building from the engravings in the Adams' *Works in Architecture*.

[21] Soane's interest in Mistley is likewise proved by the fact that the only two church towers he ever built, Holy Trinity, Marylebone and St. Peter's, Walworth, are both obvious derivations from it.

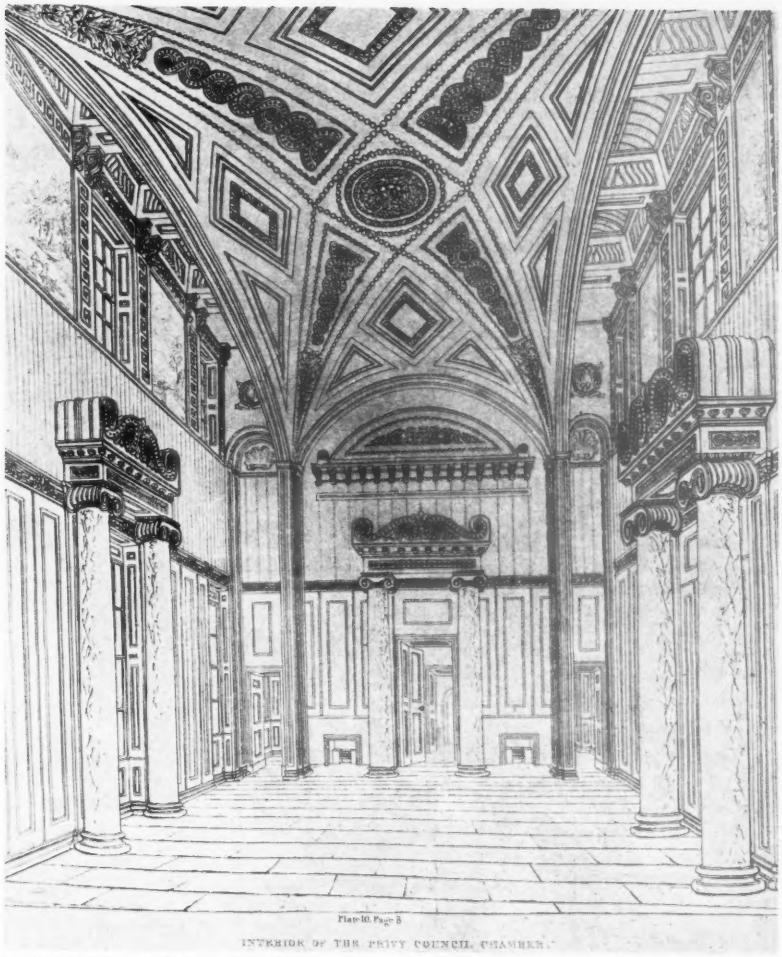


Fig. 16: Privy Council Chamber, Whitehall, by Sir John Soane, 1824

[22] Compare the Egyptian designs in *Diverse Maniere d'adornare i Cammini*.

[23] This is another remarkable creation of Dance which has been completely overlooked. It was demolished in 1882, but is shown in an engraving in J. E. Price, *A Descriptive Account of the Guildhall*, 1886.

[24] The R.I.B.A. recently acquired the original drawing of this Alambra at the sale of some of the Marquess of Bute's MSS. A note on the drawing states that it was designed in 1750 and built in 1756, so it can not be by Sir William Chambers.

[25] *Gli Antichi Sepolcri trovati in Roma*, 1768.

[26] 'The *lumière mystérieuse*, so successfully practised by the French artist, is a most powerful agent in the hands of a man of genius, and its power can not be too fully understood, nor too highly appreciated. It is, however, little attended to in our Architecture, and for this obvious reason, that we do not sufficiently feel the importance of Character in our buildings'. (Lecture 8; Bolton, p. 126.)

[27] In Folio 4, cpd. 22.

[28] Given in A. T. Bolton, *Portrait of Sir J. S.*, 1927, p. 94.

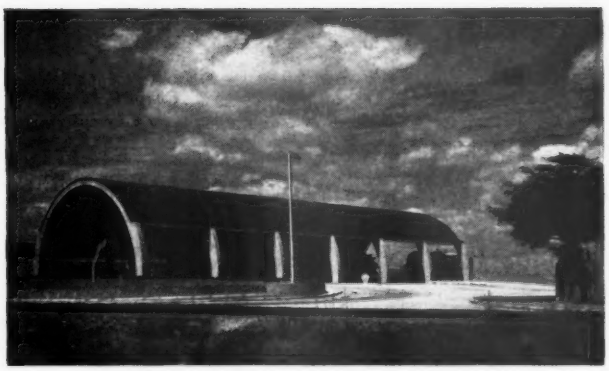
[29] I can not resist quoting here one of the few scraps of Dance's opinions about architecture which we have, since it is relevant to the whole Dance-Soane problem. Farington, meeting Dance at Sir George Beaumont's in 1802, reports him thus: 'He derided the prejudice of Uniting (? limiting) Design in Architecture within certain rules, which in act though held out as laws had never been satisfactorily explained. He said that in His opinion . . . architecture unshackled wd. afford to the greatest genius the greatest opportunities of producing the most powerful efforts of the human mind'. (The Farington Diary, vol. ii, p. 209.)

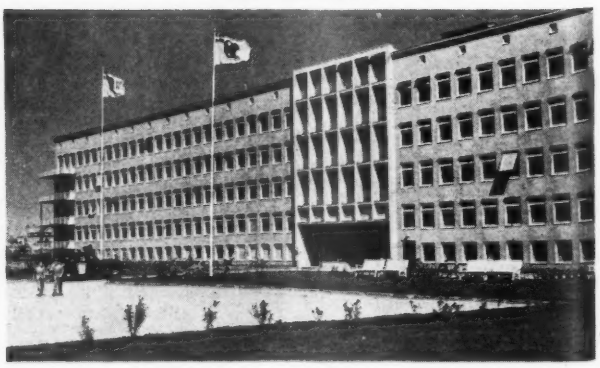
Above: Burlington and Quincy Railroad Station, U.S.A. Architects: Holabird, Root and Burgee. Left: The ss. *Rangitoto*; entrance hall. Architects: Easton and Robertson [*FF*]

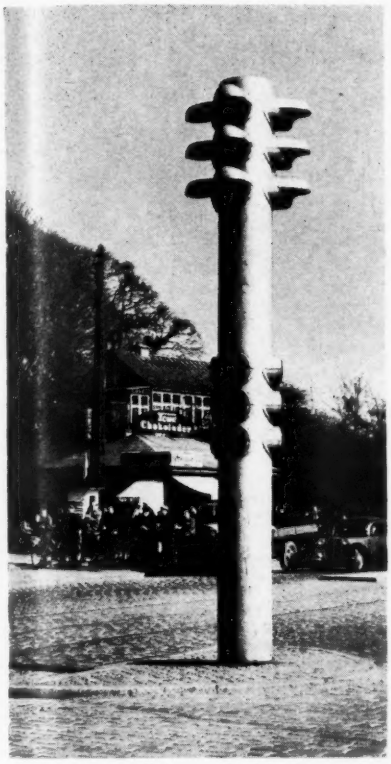
The Architecture of Transport

Some photographs from the R.I.B.A. Exhibition, open 22 February to 22 March

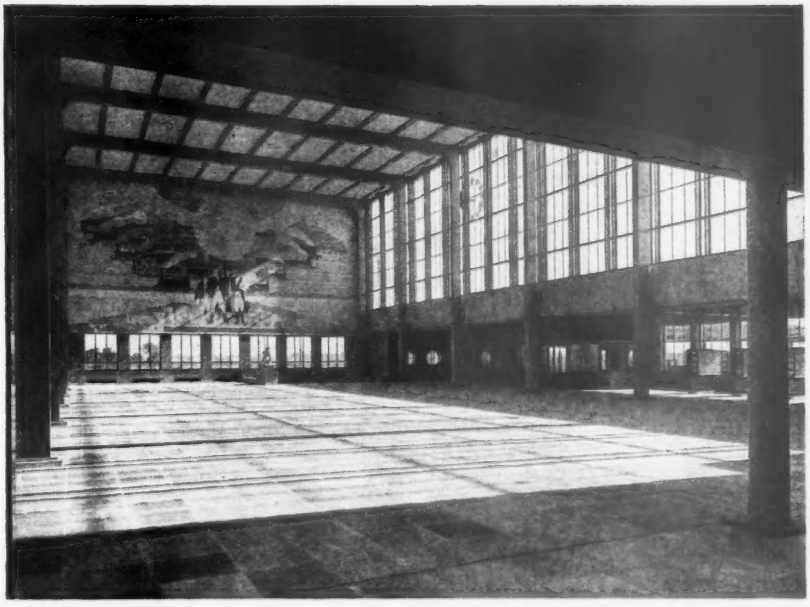
Below, left: Bus station at Newbury Park (London Transport Central Line). Architect: Oliver Hill [*F*]. Below right: Office building at Bromma airport, Stockholm. Architect: Professor Paul Hedqvist







Above: A traffic light standard in Denmark

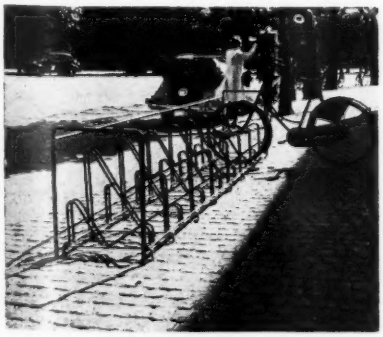


Above, right: New railway station in Rome; the booking hall. Architects: Fadigati, Castellazzi, Pintonello, Calini, Montuori and Vitellozzi

Opposite: Amstel railway station, Amsterdam; the booking hall. Architect: H. G. J. Schelling

Below, right: Railway station at Como. Architect: P. Perilli

Below: Street bicycle stand in Copenhagen



Developments in the Design and Construction of Furniture

By David W. Pye, M.S.I.A. [*A*]

Read at a meeting arranged by the R.I.B.A. Architectural Science Board, 19 December 1950

M. Hartland Thomas, M.A., M.S.I.A. [*F*] in the Chair

Moulded chair. Knoll Associates, Inc., New York

DEVELOPMENTS IN THE DESIGN and construction of furniture are being made all the time and they are of many kinds. It has been difficult to decide which of them to talk about in a lecture like this. What I shall do is to try and combine a very quick look at the most important developments in technique which are now going on, with a more detailed description of one or two particular developments which I thought might be interesting or useful to us as architects. I hope all this will not be too familiar to you. I can not promise you any startling revelations. There have been developments in plenty, but not revelations nor revolutions. Developments are, of their essence, fairly gradual.

A great deal of what I shall say refers to wood. To be sure there is metal furniture and furniture made of plastic. There are many materials available to the designer, but wood is still the chief of them. The cheapest and most ordinary furniture is still made of wood, and so is the most exquisite and the most expensive. New kinds of wood are being imported, but none of them so far has shown such excellent properties that these alone have caused developments. Perhaps the world has already been too thoroughly combed for the best of its timber. But although really good timber is hard to get the famine is not so bad that shortage by itself is radically affecting design.

New tools also are constantly being developed, but the innovations are more in details and accessories than in essentials. Power-driven tools can still do very little more to wood than hand tools can. They are great savers of skill, of labour and of time, but they have not added much to the range of things that can be done with wood. In fact I will hazard a guess that until about 1939 we could not produce any complete job by modern industrial technique which hand work could not have done as well a hundred and fifty years before. But now there really are cases where the old hand technique could never compete: that is to say where a complete job based on modern industrial technique is *better in quality* than the best hand-worked equivalent could ever be. No doubt this has been the case for a long time in wooden aircraft. In furniture it is something new and encouraging. It is encouraging because we have got into the way of thinking that factory-made is necessarily second-best to hand-made, if one may venture to attempt such a distinction; I say, *if* one may venture, because very little furniture is made without the use of hand tools somewhere: and furthermore the usual distinction between 'hand-made' and 'machine-made' is now hopelessly misleading as applied to furniture. When you look at a piece of furniture you can tell at once if the parts have been hand-fitted and hand-finished: in these things good hand work is nearly always better than machine work. Also you can often tell that some of the final shaping of parts has been done by hand, in chair work for instance. But you can not tell, and from the point of view of the result it could not matter less, whether the parts were made by hand tools or machine tools, before the fitting and finishing took place. Moreover some applications of hand tools need little skill and are almost automatically guided, while some applications of machine tools need most sensitive skill and guidance. Sometimes the hand tool is better and sometimes the machine tool. For example, a dimension saw can cut so straight and clean that you can make a joint straight off the saw; hand sawing is a miserably rough job by comparison. Again, there are certain operations which no hand tool can perform (T slots and chain mortises) and others—very many others, which no machine tool can perform. The limited range of operations that unaided power-driven tools allow always tends to restrict the possibilities in design.

If we compare a whole range of operations done by machine tools in a good average mill and the same range of operations done by hand working by good average cabinet makers we shall probably find that the machined work is always quicker—far quicker; sometimes more accurate in fitting joints; sometimes not (mortise and tenon, dovetails); sometimes makes stronger joints (e.g. comb joints) sometimes not (e.g. dovetails); much less versatile in shaping parts; seldom quite as neat; in some particulars never as neat (e.g. in fitting shoulders); not nearly so good at preparing the surface of the wood for polishing; and incapable of giving a complete job the same air that a good cabinet maker gives to everything he turns out. That I believe is a fair summary of the present standing and development of machine tools judged by the *quality* of what they do.

The principal technical developments in wooden furniture do not result from new materials and new tools, nor even essentially from new glues, though these last are very important. The greatest changes have resulted from new techniques in handling veneers, which have made it possible to produce laminated bends and formed plywood shells with certainty, and, if not cheaply, at any rate without outrageous cost, for general use. Formerly these have been used only for very special jobs, or in special branches of trades; for example, the laminated bends in grand piano cases and oval mirror frames.

In forming plywood you take three or more veneers and press them over a solid form so that when the glue between them hardens they form a rigid shell which fits over the form. Thus you can make cylinders or parts of cylinders, hemispheres, or compound curved shapes such as would suit the seat and back of a chair. Where you have compound curves the veneers have to be tailored to fit them just as the cloth of your coat is tailored to conform to your back.

This kind of thing was seldom done in the old days because there was no very certain and simple means of applying pressure evenly all over the veneers while the glue hardened. You had generally to press the veneers between solid forms, in which case all the pressure came in one direction. That is to say, if you tried to form a thing like a half-round gutter by pressing the veneers together between a solid half cylinder and its hollow counterpart, you would get all the pressure at the bottom of the gutter and none at the edges, where the forms are not brought close together as the pressure increases.

There have been many devices for overcoming this kind of difficulty but, in the long run, none so good as the newest, which is to take the solid form, lay the veneers on it, fix them loosely to it, with glue between them, put the whole thing in a rubber bag, and suck out the air. The atmosphere then applies fluid pressure perpendicular to the surface at every point. Next you put the whole bagful into a steam-chest and let in steam. This applies still

more pressure and also heat to make the synthetic resin glue harden. When you take out the assembly the job is done. There are many variants of this kind of process, which first became important for building wooden aircraft. Because some of the synthetic glues harden very quickly under heat you need not leave the shell on the form very long while the glue sets, and so you can produce the shells in fairly rapid succession; only fairly rapid as yet, so the process is still expensive. But eventually it may revolutionize furniture making; both chairmaking and carcase work.

Much the same principles apply to making laminated bends, where you take several strips of veneer all with their grain going the same way, and having put glue between them, you bend them round your form. Each veneer slides on the next as it goes round, just as the cards in a pack do when you bend the pack. If the strips of veneer are narrow you can apply pressure well enough without any rubber bag. Cramps of various sorts can be used but there are ways of applying fluid pressure in these cases also. Things like curved drawer fronts can be made by laminated bending, but its principal use is in chairmaking. For many purposes in chairmaking, however, it is cheaper to bend wood in the solid and often solid bends are just as good as laminated ones. Solid bending is a very ancient process; you soften the wood by steaming it and bend it round a form. As the piece bends the outer face stretches and the inner face compresses, just as in a beam, and if you are unlucky or try to bend the wood too far, it breaks. In the fairly recent developments of this technique you support the outer or convex face of the bend with a steel strap as you pull it round. The ends of the strap are fixed to the ends of the piece of wood being bent. When you bend the strap and wood together the strap, being steel, insists on remaining the same length, but something has to alter so the wood compresses. If you do it correctly no part of the wood is in tension. In an ideal case the neutral axis of the strap plus wood assembly lies exactly between the strap and the wood.

By this means you can do bends of a very small radius—in properly selected wood of the right kind; and each wood varies in its willingness to bend. The home-grown ones are usually the best. The Forest Products Research Laboratory have done a great deal of research on bending, for which we are all in their debt.

The synthetic resin glues are used more and more in furniture as indeed they are in other woodworking trades. No doubt you are entirely familiar with the astonishing properties some of them have in resisting heat and damp and their strength in joining wood to metal or metal to metal.

I believe it is now generally agreed by the experts in glue that Scotch glue will make a joint that is quite strong and durable enough for all purposes in furniture, and since it is very easy to demonstrate that a Scotch glued joint is stronger than the wood round it one can scarcely doubt that this is true. Yet there seems to be a growing feeling that synthetic glues of the cold-setting gap-filling types, which are the equivalent of Scotch glue for most purposes of furniture assembly, are more reliable than Scotch glue.

It has been suggested that the reason for this is as follows:—*First:* The synthetic glues need careful use; they must be correctly stored, not kept too long, must be correctly mixed and they must not be kept beyond their allowable potlife. All this is so to speak printed on the label of the bottle. *Second:* It is equally true that Scotch glue must be correctly soaked, used fresh, in a warm workshop; must be applied very quickly and preferably to wood that has first of all been warmed. Nor must Scotch glue be more than twice reheated if it is to keep its strength. These things are all written on the heart of every true cabinet maker but they are *not* printed on the glue.

The suggestion is that the synthetic glues being new and scientific get respectful attention, while the old glue-pot bubbling away day in and day out is taken for granted. So that too often the shop is cold, on Monday morning anyhow, and the glue gets chilled before the joint is together, or it is used too thick or reheated too often.

The quality of glue raises the question of the strength of joints and that brings me to the research work now being done for the Furniture Development Council by Mr. Seddon. Among many other services to the industry the Furniture Development Council has begun research with the object of devising performance tests for furniture. If the Council does succeed in devising effective tests it will be possible for someone to frame regulations to ensure that furniture is well made, by saying in effect 'any chair which passes the performance test will do' instead of actually specifying the materials and the construction to be used. The present regulations are meant to ensure that *tax free* furniture is up to a certain standard. But it is perfectly possible that if a good enough standard or regulation could be devised it would be adopted by agreement among manufacturers, voluntarily, even if the tax had ceased.

Now any regulation, or standard, which specifies materials and a type of construction is bound to exclude useful innovations sooner or later, no matter how skilfully it is framed. A performance test has not the same disadvantage. You can say in your regulation, 'we do not mind how it is constructed so long as it will stand this load applied here and that load applied there'; and so on. Moreover, the kind of regulations now in use can not of themselves prevent bad assembly and gluing. A performance test might and probably would detect such defects. It would, therefore, be a stronger guarantee of quality as well as a means of allowing greater freedom in design.

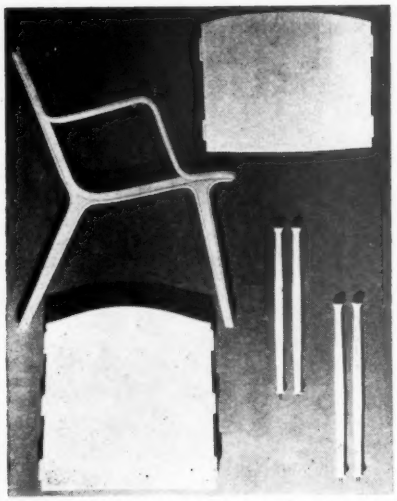
The Furniture Development Council has stated the object of its research as follows. 'To find out whether functional performance tests for furniture can be devised which are capable of execution even in small factories without the use of elaborate equipment and which will guarantee an equal standard of wear in functional use regardless of the method of construction or the materials used.' It is not expected that it will be at all easy to devise these tests and the task is not complete yet.

Danish chair. From the Norwegian magazine *Bonytt*

The Council decided to confine its attention, at first, to dining-chairs. Their general approach has been, first to try to find out how chairs really are loaded in normal use and normal misuse. Then having understood the principles of loading, to propose tests which will load the chairs in the same way that they are loaded in use, or as nearly the same as may be, and finally to apply these tests to chairs of the usual types and to find out how the chairs vary in strength.

I do not propose to try to describe the course which the research has taken. It is not nearly finished, and in any case I am not competent to do so. But there are some observations I should like to make about it.

A number of chairs have already been tested to destruction in the course of the work, and I suppose that many more will be; and later on, other kinds of furniture as well. It seems to me, as an onlooker, that some very valuable information about the strength of different kinds of joints will come out of breaking furniture, and we may expect soon to be able to improve on some of the rules of thumb for designing joints. For example, we all know that in a tenoned frame the thickness of tenons should be one-third the thickness of the rail, but *is* one-third really the best possible proportion in these days of mortising machines and in every different situation? Perhaps we shall soon know. Very likely we shall find that different woods and different purposes need quite different treatment, and possibly the knowledge may be rather important, because very often, of course, it is the size of the joint which really determines the size of the member.



Danish chair. From the Norwegian magazine *Bonytt*

Again, the old controversy about the relative merits of dowels and tenons may be settled. In Scandinavia I believe that there is an increasing reliance on dowels ; spirally-grooved and also sixteen-sided types are favoured. When are dowels really good enough and when are they not? Some of the experiments strongly suggest that dowels may have got a bad reputation unfairly, for the simple reason that there is very often no effective glue in the joint at all; either because the glue was too thick or because it was chilled, or else because the dowel fitted too tightly and all the glue was scraped off the jointing surfaces as the joint was brought up.

Another thing which the experiments have demonstrated convincingly is the virtue of the traditional conception of a framed upright chair. A chair can be put in the test rig and strained out of all reason so that every joint has given way: and yet, afterwards, you can push it more or less square again and sit on it with complete confidence. Indeed, I understand that one of the difficulties of the job has been to settle a reasonable definition of 'failure' under test.

I should now like to turn to a part of furniture-making where technique and æsthetics can be seen very closely interlocked. The æsthetic qualities of furniture depend very much on the way it is polished. I had almost said they depend on nothing more than on the polish. Certainly polishing spoils more potentially decent furniture than any other part of the manufacturing process. And certainly the polish on new furniture can very rarely compare with the surface quality of good antique furniture.

Wood 'in the white', as the scraper or glasspaper leaves it, has almost invariably a delightful quality. Even the worst of furniture is endurable when you see it in the white. But of course you can not leave it like that very often because although in the end at least the solid parts will acquire a patina, as a rule there is a long intermediate stage of mere dirtiness which is unpleasant; and of course unprotected veneers would often come away altogether, so after all the wood must be polished. I believe it is a good rule in polishing that the higher the gloss the thinner must be the layer of polish over the wood. A high polish may be good if it is thin and a thick coat of polish may be good if it has a smooth satin finish—that is to say if it is partly a diffuse and partly a specular reflector. The really unpleasant polish is the one that consists of a thick layer of lacquer with a surface which reflects like a mirror—true specular reflection—but at the same time undulates and is pitted, like orange peel. This produces the brown treacle effect so very often seen in cheap furniture.

Polishing nowadays in all but the most expensive furniture is done by spraying the wood with cellulose or synthetic lacquer, as, of course, we all know. For the matter of that the most expensive furniture might just as well be polished in the same way. It is an excellent way. But its quality largely depends on what you do to the polish *after* spraying it on, and several useful treatments have been developed. The surface must, of course, be properly prepared first. It must be sanded really smooth and also filled if the grain is very open. Filling the grain is always regrettable but it is often necessary. I suppose the great thing is not to use a filler which is too dark in colour for the wood.

A coat of lacquer, once it has been sprayed on and allowed to dry can be treated in any of these ways:—it can be *pulled over* by rubbing with solvent on a pad, as in French polishing; this smooths the surface; it can be *cut down* with wet sandpaper, or with steel wool; this also smooths it, but to a different quality; it can be treated with an *abrasive compound* or paste such as one uses for polishing cars; this polishes the surface after it is smooth; and, finally, it can be *waxed* with furniture polish or with an abrasive wax. All these treatments modify the surface and different sorts of surface can be achieved in the first place by using different sorts of lacquer—there are kinds of cellulose lacquer which give a matt surface straight from the spray. And, of course, several coats can be sprayed on in succession, perhaps cutting down after the first coat. So, by combining these various treatments in different ways and by using different kinds of lacquer, many subtle variations of surface quality can be got. For example one may fill the grain, spray with a 'sealer', cut down, spray again, perhaps more than once, cut down with fine steel wool, rub with abrasive compound, and finally apply wax rubbed on very thinly. On another wood one might simply spray, cut down and wax. I do not think I have ever seen a nice finish got just by spraying the wood and leaving it. The detailing of the job will affect the quality of the polish in cheap work. A bead of polish will form in internal angles and tend to give the well-known treacle-like quality.

I have been told by Professor Russell of a very good way of treating oak—a wood which is spoilt by almost any ordinary method of polishing. Even a thin coat of wax changes oak for the worse compared with its untreated surface. But by spraying it with heat-resisting lacquer, and then drastically cutting down with steel wool, a hard surface is produced which is nearly as nice as no polish at all.

The quality of the polish has become doubly important for contemporary furniture because in it ornament has become conspicuous by its absence and applied decoration has, till lately, been thought quite immoral. It seems that the public does not really like furniture to look so very plain. The public likes its furniture decorated. The decoration it gets is deplorable as a rule, but I doubt if that is a good reason for deploring the public's desire for decoration. In fact it looks like a good reason for trying to design better decoration, and some designers are already trying.

There are plenty of ways of decorating the surface of wood which are not outrageously expensive, because most woodworking machines are potential carving tools. It is easy enough, for instance, to give such a thing as a drawer front a corrugated or waved surface, and that alone can provide the basis for a very satisfactory effect. That kind of decoration can be developed a stage further by cutting across the corrugations a series of parallel flutes or other mouldings. The intersections of the forms will produce an infinite range of very interesting patterns. Treatments of this kind are not quite so simple as they sound because the surface still has to be sanded before it can be polished, and that can not be done by machine in such cases, if any sharp arrises are to be preserved. But still, here is the beginning of a development in design which may well go a long way. Carving by means of the high-speed router is in common use in the trade, and the router is a very good carving tool. If we do not like the work done with it we should not blame the tool. For the matter of that one can do remarkably nasty carving with the most approved traditional tools, and very nasty furniture without any carving at all.

Sand-blasting suitable woods probably has great potentialities for decoration. I have some trial pieces of sand-blasting and machine-carving here done by Mr. R. Heritage, a student of the Royal College of Art.

I should like now to turn to the design of chairs and seats. Certainly there have been developments in the design of chairs, but I do not think very many of them represent advance so much as variation. Designing comic chairs is great fun though, and while our comic buildings usually stay on paper our comic chairs get built—three-legged ones; ones with a back 6 in. wide; ones with a back 3 ft. 6 in. wide; ones without rails; ones with a crack in the back; ones with a hole in the back; ones without a back at all; and sooner or later, there will be ones without a seat. And how really nice they look in the pages of DOMUS,

that admirable magazine. One looks at them and cries 'Vive le sport'!

But there has been a really considerable advance in the theory of chairmaking if not in its practice. A Swedish doctor, Bengt Akerblom, has recently published a study of *Standing and sitting posture with special reference to the construction of chairs*. The author had found by experience that chairs and seats were usually uncomfortable. This he considered resulted in unnecessary tiredness from sitting in positions of some degree of strain. He considers that good sitting positions are those which can be held for a reasonably long time without the body being tired by the act of sitting. In the course of this study he has surveyed much previous work on the same subject by other authors and has done a great deal of research to find out what is the best resting position for a seated person: that is to say, I take it, the position in which the muscles do not need to do work in order to keep the body steady.

His first conclusion is that, as pointed out by Vernon in 1924, there is no single best resting position. To avoid fatigue it is essential that the seated person shall be able to change his position at intervals. The question therefore becomes, not what is the best resting position, but what positions are resting positions.

He then concludes that so far as the back is concerned there are three main attitudes in which the muscles of a seated person can relax:—(*a*) sitting round-shouldered with the body sunk forward and the back unsupported. The attitude in fact which in our youth invariably provoked the injunction 'sit up straight now, dear'; (*b*) sitting with the small of the back supported and the body about upright; (*c*) sitting with the body leaning against a back rest which supports most of the length of the back and has a pitch of about 60° or 65°. It was held by an eminent German authority of the 1880's that position (*a*) caused a formidable list of ailments some of which I should blush to mention. Hence the 'sit up straight, dear'. Akerblom, however, tells us that there is no evidence that position (*a*) is unhealthy at all. He does not maintain, however, that even by ringing the changes on these three positions we shall be able to avoid all strain on the back muscles.

As regards the seat he finds that although it should be possible, by way of varying one's attitude for the sake of a change, to rest the thighs on the seat so that their weight is carried by it, yet the seat ought to be so low that the thighs can be lifted clear of it simply by drawing in the legs: the reason is that the muscles under the thighs, with the sciatic nerve in among them, are too soft to support the weight of the leg and they will be compressed and cause discomfort if they are loaded too long. It is not true, however, that the circulation of the blood to the lower leg is constricted by pressure under the thighs.

It follows from this that the normal chair with a seat height of 18 in. is likely to cause discomfort to most women: their shins are not so long as a man's, and so the seat is too high for them to lift their thighs clear of it. In fact Akerblom says that were it not that the thighs must be rested now and then for variety's sake, the ideal seat would be a mere 20 cm. deep—8 in. or so. His point here is that the only part of one's backside which is really adapted to support the body's weight is comprised in two little 2 in. circles surrounding the ischial tuberosities—which I understand are the two bony projections underneath the pelvis, which as anyone can tell *do* really take the weight. I am told that in agriculture the ischial tuberosities are called the pin bones: for the sake of brevity I shall use that term.

It follows from this that if you make the chair seat too luxuriously soft you will defeat your object, because instead of the reaction to your load being concentrated round the two small and insensitive pin bones it will now be distributed over a larger and more sensitive surface which is not properly adapted for resisting pressure.

He also remarks that it is essential that the depth of the seat on plan from front to back shall be small enough to allow the back to reach the back rest, and that if the seat is too high you tend to sit too far forward on it and so lose contact with the back rest. On the basis of these conclusions he formulates recommendations for the shape of chairs, and these are embodied in a chair which has been designed by Gunnar Eklöf.

In a summary statement the recommendations are these:—(*a*) height to front of seat 40 cm.—16 in.; (*b*) depth of seat 40 cm.; (*c*) prominent support for the small of the back, preferably slightly padded and saddle-shaped. Akerblom states no height for this. One usually reckons 9 in. from the chair seat to the small of the back, and it seems to suit most people; (*d*) upper part of back pitched at 60° to 65°; (*e*) seat only a little padded. It may with advantage be shaped a little as well, presumably by hollowing as in Windsor chairs. The ideal material for the seat gives only a little, e.g., the old-fashioned cane chair seat; (*f*) the pitch or slope back of the seat is unusually steep, and its exact amount depends on the material with which the seat is covered. The more friction there is between the buttocks and the seat the less need there will be to pitch it. Akerblom's back rest will tend to push the sitter forwards if the seat is too slippery or too flat.

The 40 cm. dimensions are determined by the length of the thigh and lower leg of the average woman according to Akerblom's sampling. He finds in this connection that while the seat of most upright chairs (dining-chairs) is too high the seat of many easy chairs is too deep. He also says that the distance from the eye to the table-top may reasonably be given as 30 cm. and the distance from the front of the seat to the table-top should be the same, i.e., the table height should be 70 cm., or a little under 28 in., taking the height of the seat rail as 16 in.

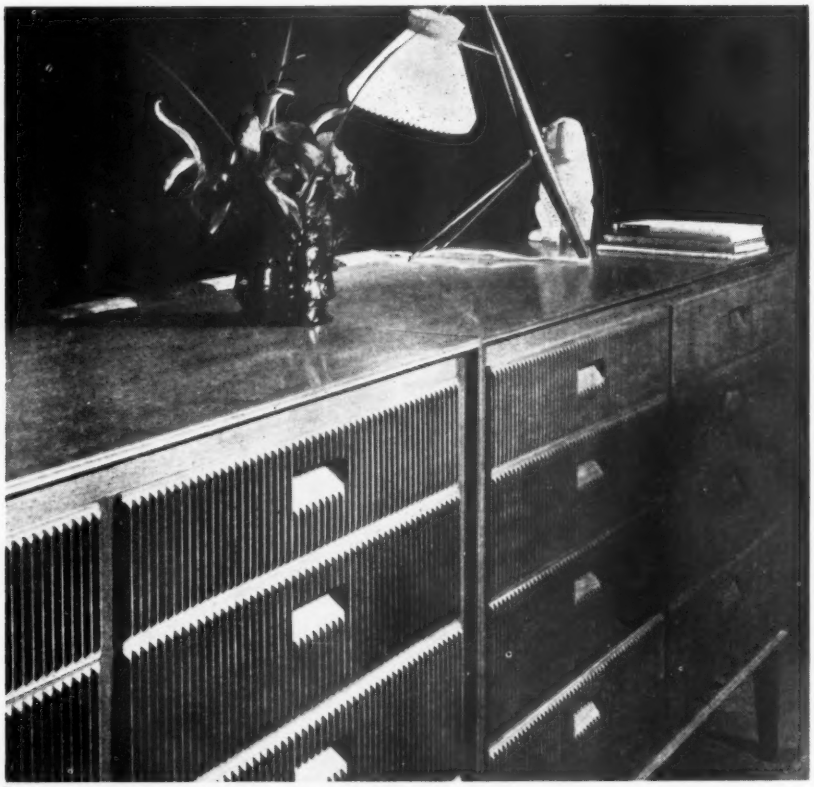
Akerblom's work is undoubtedly of the greatest value to anyone who has to design a seat: at any rate, a seat of the upright form. He has determined once and for all what are the body's resting positions (and this surprisingly was not an easy task), and he has suggested a form of chair which permits the average body to assume them. That is to say, he has found out what kind of chair makes most people least tired. But that unfortunately is not at all the same thing as finding out what chair makes most people comfortable.

Swedish chair. Svenska Slöjdföreningen

Comfort quite clearly depends more on the state of one's mind than on the state of one's body. Our bodies, unlike our minds, are all constructed to exactly the same specification. If chairs were nothing more than effective proppers-up of bodies, designing them would be easy. But they are not. They are proppers-up of people—of individuals—with individual likes, preferences, hesitancies, hates, prejudices, and the like. Consequently two people rarely agree about the comfort of one chair; indeed it is surprising how widely they can disagree. Or is it so surprising? Half the world prefers to use a block of wood for a pillow. There are Chinese who would rather sleep on boards than on the most luxuriously soft mattress. For them, softness is synonymous with discomfort.

It is not to be expected, then, that everybody will find Akerblom's chairs comfortable, and there is a danger that his theory will be unjustly disparaged because of this, seeing that people often say he has found out the most comfortable form of chair. But I do not believe that his theory will be seriously discredited, nor that its value will diminish. It has given us a foundation of fact on which to develop our designs, instead of shifting opinions. The very least we can ask of a chair is that it shall rest us. Now we know how to ensure that.

There is of course an obvious difficulty about Akerblom's 16-in. seat height: it is too low for most of our tables. But where chairs and tables are designed together this will not matter.



Bedhead storage unit. Scottish Furniture Manufacturers

Akerblom's treatise is concerned with sitting in a fairly upright position, but not with reclining positions. He seems to suggest that deep upholstery is not of use for resting the body. None-the-less, a great many people find comfort in reclining in easy chairs which are more or less deeply upholstered. One wishes that Akerblom had extended his researches to this field in which there are now several competing techniques.

I think there is fairly general agreement that upholstery ought to be soft and also resilient, but that it can easily be too soft and too resilient. It ought also to be stable and prevent one from shifting sideways inadvertently.

Here are some of the means of achieving these qualities which are now in use :—

First: by pads of stuffing only. For example, curled hair or rubberized hair covered with cotton felt or wadding.

Second: by stuffing supported on coil springs—the traditional upholstery method. Its success depends on the way the springs are laced to each other and to the frame of the chair. If this is done well they act together as a unit and the upholstery has a level resilient surface. If it is done badly the surface is domed and neither stable nor comfortable.

Coil springs are now often clipped together into a light metal framework forming spring-units, and these are built up into chairs without any lashing. This method tends to give a level and stable surface. It is not so easy to repair spring unit upholstery and it sometimes creaks.

Third: tension or cable springs. These are cylinder springs like the spring in a spring-balance, stretched across the chair frame and supporting cushions. The springs are sometimes linked together or arranged in a pattern radiating from a central flat plate.

Fourth: zig-zag springs. Allied perhaps to tension springs, but each spring is not a stretched coil, it is a low arch which is made of thick wire snaked into a zig-zag. These springs form a foundation for cushions much as tension springs do and like tension springs they provide a means of getting a lot of resilience out of quite a thin layer of upholstery.

Fifth: foamed rubber latex cushions or pillows which combine springs and stuffing in one. They can be supported on a perforated plywood base or on any of the types of steel spring I have mentioned. Foamed latex is made in different grades of hardness, and in preformed units suitable for seat and back cushions. It can also be built up to any shape required. I have no doubt that you are all quite familiar with it.

So far as I know, those five systems and the many variations and combinations of them represent the most important runners in the upholstery field. Having named the runners, one ought to discuss their form. I do not think there is any doubt that each method can make a very comfortable seat, and I imagine that whichever methods ultimately die out will have been defeated on economic or fashionable grounds rather than superseded by something more comfortable. For example, conventional coil spring upholstery involves a great deal of hand work and that will presumably tell against it. The stuffing pad, cable spring, zig-zag spring and foamed latex methods give the designer a chance to produce something comfortable without being voluminous, and as the fashion goes now that will be in their favour. More than that I do not think one can say: and, besides, all this talk about easy chairs makes me want to sit down. With your permission I shall do so.

DISCUSSION

Professor R. D. Russell, R.D.I., F.S.I.A.: Mr. Pye has enlarged on certain aspects which really are important. In production technique I think he has singled out for detailed consideration the only really original and new invention, the method of using an autoclave to form plywood or to make laminated bends. For far too long very many designers have either minimized wildly or exaggerated wildly the importance of manufacturing technique. On the one hand we have the craftsman designer who rejects it entirely as something which is almost an indecent affront to the dignity of handwork, and on the other hand we have the industrial designer who is often obsessed by its mysteries. Who shall blame him? He lives in a technical age and technicians themselves are anxious to hold on to the personal expert mysteries of their craft.

Mr. Pye himself is a very good cabinet maker, and he uses hand tools with skill, distinction and with great feeling. He realizes that machine processes are very often the mechanized development of a hand process; that the hand process has been mechanized and has gradually been made more quick and flexible as well as more accurate, but mostly more quick. So he has a complete understanding of modern machine technique. He accepts it and can use it, and he is not in the least frightened or worried by it. With me he is responsible for the training of a few furniture designers, and it gives me the greatest pleasure to think that ideas about training have completed the circle from Lethaby, the wisdom and completely contemporary freshness of whose ideas amaze me.

Mr. R. A. F. Riding [*A*]: I can not understand why it is so necessary to go through all this elaborate technique of lamination. I can understand large works laminating wood but not the small ones, because all the scantlings are small.

We come now to the regular exactitude of machine produced furniture, and I think that it is a most depressing sight to see in a public hall rows and rows of chairs which fit one inside the other all exactly alike. The slight inequalities had very great interest, they are a very necessary adjunct to beauty in my opinion, and it comes from hand work. Which do members of this audience like best as architects, the old natural shape strong beams in a cottage or the absolutely square sawn pieces of wood?

I am making a plea for the craftsman who starts from the bare wood and makes a thing which lasts for ever. Machinery is very clever, but where does machinery come in when you have a Louis Quatorze chair? Can machinery do carving on a chair? Are you to rule out carving altogether? Where is your laminated chair when you want a real piece of furniture? We can not bring everything to the exactitude of parts of a turbine. That is not art!

Mr. J. Pritchard (Furniture Development Council): May I just make one critical point in connection with bending. I expect the bag method is expensive, and I think the lecturer will probably find that many mechanical modifications or compromises of the way he suggested will work out rather cheaper than the bag method.

Another point is that care must be taken in designing furniture, using all these new techniques. Do not be disappointed if, having tried them, most of them prove more expensive. The methods employed in the factories at present are so efficient that it is exceedingly difficult to get a new method which beats them.

Mr. G. E. Dunn: I am a retailer of furniture, and you are tackling a most important matter in regard to this machine decoration. There should be decoration of furniture, but I do raise one note of warning. I feel that we are becoming vertically minded. So many interiors have vertical cladding, and there is that danger. I am glad to see that Mr. Pye has reversed the piece of wood in the machine and has produced some sort of cross hatching. The sooner he can go further and have a few circles, or formalized bunches of grapes, the better it will be.

Mr. E. S. Hartley [*L*]:The lecturer referred to finishes—polishing and spraying. A few years ago I went over a factory in the Midlands which belonged to a firm the finish of whose furniture I had always admired. I asked them whether they had gone in for this spraying business, and they told me that they did the spraying but that the secret of their finish was that they stuck to the old-fashioned way of bodying in with French polishing first.

With regard to chairs, in the days when I was designing furniture we did not make them 16 in. in height from the floor. After customers had come in and selected their chair, it would be upholstered as far as the calico covering, and then they would sit in it to see if it suited them. If it did not, it was altered until it did. In these days we can not have anything of that sort.We have to buy the chair as it is. Also, in those days there was a ladies' chair and a gentlemen's chair. Nowadays they both have to put up with the same.

Mr. C. B. Willcocks [*F*]: The lecturer has been dealing chiefly with construction, and I can not help feeling that furniture designers have not paid sufficient attention to one part of the design, namely, the legs. In the 17th and 18th centuries all furniture used to stand on firm legs and look substantial, but much of the modern furniture looks very questionable in this connection.

Mr. D. R. Shorten [*A*]: I do not think that I am alone in believing that the standard of furniture in this country at the moment is rather depressing. I have been looking round three London stores for some furniture, and I have found nothing at all to speak of except one or two items here and there. I agree with Lethaby, who was after some good honest simple stuff at a reasonable price; but I was unable to find anything. I do think that before we go into this very difficult matter of decoration we should try to produce and to market at reasonable prices some good, honest, simple furniture.

Mr. J. E. Paton: I should like to point out that the reason why we cannot have variety in furniture is due to the price.

So far as methods of decoration by machine are concerned, I think that a great danger which may not be avoided is that decoration will be standardized. Decoration should be varied and designed rather than leaving it to what the machine can produce.

Miss Norah R. Glover [*A*]: I disagree with the view that there is no good modern furniture designed nowadays. I have noticed that if you search very carefully it is possible to find designs æsthetically satisfying, strong, comfortable, easy to keep clean and very satisfactory in every way.

With regard to hand-made furniture, I saw a lot of samples of the Rural Industries Bureau. There were lovely carved chairs of very modern design, but who can afford to pay £45 for an ordinary ladder-backed chair?

Mr. Pye (in reply): It is absolutely true that there is a quality in a great deal of old furniture which we simply can not approach by machine making, and it is no use pretending that the contrary is the case; but there are qualities which we can achieve by present day technique which, if they are taken to the limit to which I believe they can be taken will, I am sure, make something in furniture which, although different, is not less to be admired.

I do not think that regularity in itself is anything against good design, and I do not think that the essential merit of hand-made furniture has anything whatever to do with irregularity. The best hand-made furniture ever known in this country—which I take to be the furniture of Harewood made by Chippendale and designed by Adam—is about as mathematically regular as anything made out of wood. I have heard it said that the true merit of hand-made furniture is that it erred delightfully. I imagine that anybody in those days who 'erred delightfully' would have found himself out of work—and quickly! I think there is no doubt that precision and regularity have a delight which is different and not essentially any less good than the other kind of delight which you find in very simple country-made furniture which does 'err delightfully'!

I think the reason for laminating with small scantlings is that if you want to form certain curved shapes the other methods are far more laborious. Although the bag methods are expensive, the older methods

Moulded plywood armchair. Museum of Modern Art, New York

of building up in brickwork fashion with wooden segments, or staving, are very much more expensive and also use more material.

On the question of cost, it is true that the newest and most interesting methods are still expensive. I believe they were invented regardless of cost in producing wooden aircraft, and it will be a long time before they can compete with methods of producing furniture by machining solid wood and using plywood in flat sheets. Machining wood is nothing new, of course. It has been going on for 150 years, and they are getting quite good at it!

With regard to the treatment of pin bones in reclining chairs, I think that it is absolutely true that in reclining chairs you do want soft upholstery and the question appears to be quite different. It is not comfortable if you can not shift about in a reclining chair, and there is something about reclining chairs which Otto Blom has not found out.

Verticality is obviously one of these fashions which come and go. I think also that it is a restricted kind of approach to decoration. It is a very fascinating one, but people will always ask for more than that.

It is true that the legs of modern furniture are not by any means the most satisfactory part of it, and there seems to be difficulty in designing good ones. It is a thing, and only one of many, about which there is a great deal to learn from 17th and 18th century furniture.

I agree with Miss Glover on the question of prices. Hand-made furniture—and when I say 'hand-made' I mean completely hand finished after machine preparation—is so much more expensive, and that is the reason why one comes to buy machine-made furniture. I am absolutely convinced that if the furniture is designed to use the machines in the way in which they can be used to do a decent job, there is no reason why it should not produce stuff which, in a fairly simple way, is very good indeed, and I think it is already being done.

Arbutus strawberry tree in winter

The Rehabilitation of Building Sites

By Walter L. Irvine, F.R.H.S., A.I.L.A.

'The trees, of course, are as important as the houses.' Dudok.

MY DICTIONARY defines 'to rehabilitate' as 'to restore to a former capacity, to reinstate, to qualify again, to restore.' Any one of these definitions or better still, all of them, serve I think to emphasize what should be done to rehabilitate a building site. And when the restoration is completed there still remains more to be done, and here the substantive word does not help us. A building or a factory site is not necessarily an area of visible desolation. Occasionally buildings are erected on what is agricultural land in good heart.

In either case the last appearance should be to the eyes of those who have to live or to work there something more attractive ('arresting' is the adjective given by horticulturalists) than was apparent to the passer-by before the land was taken over for development

From an architect's point of view I think we can divide the likely problems broadly under four headings (and I hold certain views about the fourth). These are

1. Factory sites.
2. School sites.
3. Building estates.
4. Public buildings—(libraries, concert halls, etc.).

A different treatment is needed for each of these if the final requirements are fully to be met. The psychology of those who are to live and work there is an important factor in assessing the peculiar development, particularly as regards the kind of plants used —and these will be trees and shrubs. But before realizing differences, let us consider what all of them may have in common to some degree (before they are in the clutch of the contractor) and, five years after completion, what they should certainly share to a reasonable extent.

Soil and its Conservation. The basis of all horticulture, whether the area be comprised of grass or exotic plants is the physical condition of the soil. This is of course a very considerable study, but for our purposes, especially if we disregard the extremist schools of thought, it can be sufficiently simplified.

Soil is not an inert mass. On the contrary it is teeming with life to a totally incalculable measurement. However much soils may vary in texture and appearance they contain five constituents, namely, the mineral matrix, the decayed remains of plants and animals, living but microscopic plants and animals, the watery solution in the soil and the soil atmosphere. Very briefly the first two supply the 'body', i.e., the grains of soil whether in the form of sand or clay (or loam which is a blend of both) and the mould from which the life-giving humus is broken down by the living organisms of the third constituent. These organisms with the aid of the dissolved salts from the grains and humus, plus the soil gases, oxygen, carbon-dioxide, nitrogen, etc., create the rightful conditions for all plant growth. A well-cultivated agricultural field will have the correct physical constitution.

The presence of soil organisms or bacteria is an essential for any form of plant growth. For one thing they are the nitrogen-fixers for plant life. Vegetation although dependent on a certain quantity of nitrates, is unable to absorb it from the atmosphere. These teeming multitudes in turn are dependent for their well-being on soil-water or as it is called, soil-solution, which is present as a more or less continuous film covering the mineral and organic particles and fragments in the soil. So minute are the particles in clay that they compact to a solidity which makes it virtually impossible for either water or air to pass through. Unless this be broken up and organic matter added which will open up the particles, a clay soil will remain largely infertile. On the other hand, sand particles are larger and the openness of their fragments causes a rapid leaching away of rain water. In this case also the addition of decayed vegetable matter will give rise to a condition in which the moisture can be retained and be attainable to the bacteria and eventually through their presence to the plants themselves.

I have given the above very brief and necessarily incomplete picture of the life that teems and works unceasingly below ground level, in an attempt to emphasize the importance of differentiating between top soil (or top spit) and the subsoil. In the latter these bacteria are few in number or may be absent entirely. Hence the so called sterility of subsoil, and if the top soil be put down or turned below the subsoil and the latter brought to the surface, the land will remain infertile and virtually unable to support the growth of any crop—whether corn, grass, trees or shrubs.

The question of the addition of manure or other organic matter to the soil when it is returned after building operations are completed does not normally enter into the functions of the architect as it necessarily does into the work of the landscape architect, but the least that the architect can do is to ensure right from the beginning when the turf is stripped from the ground that the topspit, the normal term for the uppermost layer which may be anything from 6 in. to 15 in. deep, is laid apart by itself in heaps in such a way that it will not be subsequently covered by any other soil excavated, or, and this is equally important, be 'infected' by contact with other material such as lime, bricks, clinker or anything used during construction.

Subsoil should be treated as a totally separate material, though here too, it is wise to avoid contact with any possible mineral infection. It will, for example, be readily understood that if part of the subsoil and certainly of the top spit be permeated in certain areas with lime or lime-containing materials from which it is soluble, the physical conditions of the soil will vary greatly when the time comes for grassing down or planting.

It is a wise course, therefore, to ensure with the most precise instructions and *as part of every contract* that first the top-spit is laid aside free of interference; that the subsoil is not subjected to 'infection' and kept totally separate from the top spit; thirdly, that the areas where concrete mixing will take place are clearly defined and that this operation, together with mortar dumps, be carried out if possible on the site either of later building operations or where the ground will eventually be used as roadway.

Surface and Drainage. So much for soil conservation during actual building operations. The return of the soil to its original or destined positions is of course carried out inversely, the subsoil being first spread over the surface, the top spit then returned to an even depth throughout. Every care should be taken to see that the subsoil, if of a heavy clayey nature is not compacted to an extent which will prevent the easy dispersal of surface water. With the great weight of modern land machinery this is an ever-present risk. The depth of top soil should, for grass seeding or turfing, be not less than 4 in. throughout and preferably 6 in. No harm will be done at this stage if a lime dressing be thoroughly incorporated with the soil (at the rate of from one to two tons per acre) by means of cultivator or

disc harrow. But the application must be even throughout the ground to be grassed.

But on such areas as are to be planted with trees and shrubs or other plants, it is advisable as a rule to apply any lime necessary *after* actual planting has been done and only to those plants or in such heavy clay soil as will definitely need it. Clay has the ability to open out the tight particles, or flocculate them, as it is termed. It is remarkable how little it is realized that approximately 50 per cent of all trees and shrubs are harmed, if not killed outright, if there is any lime present in the soil. Nor is it often appreciated how unnecessary lime appears to be even in the case of trees, etc., which are indigenous to lime soils—lime definitely has its uses, but it is *not* for broadcast employment.

Either in turfing or seeding it is well to avoid isolated patches, narrow edges or strips. For one reason they add much to the cost of maintenance and architecturally they give an unpleasant 'streaky' effect. Provided the gradients of a tree-planted slope are not such as to cause the soil to wash down after heavy rains there does not seem to be any reason to my mind why soil and tarmac should not meet. There can exist of course the danger of 'spread' to the edges of the tarmac but that should be dealt with adequately at the time it is being laid.

Drainage of areas allowed for tree and shrub planting does not normally call for special attention. For it should be borne in mind that trees and shrubs have different requirements and do not, broadly speaking, ask for uniformity. The lists on pages 104, 105 and 106 include plants that prefer dry conditions and those that find a greater degree of moisture acceptable. At the same time it must be remembered that if the water table is constantly too high the air content of the soil will be driven out and this is naturally a state in which few plants will grow at all. If water, after heavy rain, remains on the surface for two hours then some degree of drainage, at least by land pipes, is required. This holds good of areas under grass, but for the reason I have given, it is a matter for individual judgment whether special drainage is necessary on open soil.

Sloping or at all events undulating ground has many valuable attributes and it is wrong to attempt a uniform level where it is not called for on account of functional reasons. Trees which naturally develop a weeping habit are often better placed on slopes than on the flat, and conversely when one wishes to stress vertical lines, fastigiate trees (those that grow tall without width) gain in dignity and appearance on land that falls away.

I have assumed so far that every effort will be made to retain as far as possible all trees already in existence on the site. Where this can be done great care must be taken that they be disturbed as little as possible during building work. Excavations for drainage and other purposes can so seriously damage their roots as to kill them. Furthermore it should be borne in mind that the construction of any tree or shrub is such that above ground it can withstand

Willows and conifers across the pond

cold or heat and, below ground level, variations in moisture. Consequently no part of the trunk or main stems of a retained tree should be buried under new soil at any time.

It will sometimes arise that a tree that is to be preserved will be surrounded by concrete. The proper course in this case is to put down a grating some 8 ft. by 5 ft. immediately surrounding the tree. In proper practice this would be lifted once or twice annually and the soil top renewed or treated with a suitable dressing. Should it not be practicable to do this, at least the soil will be sufficiently exposed to receive a meed of rain and sun. For the same reason should any young trees be planted as specimens or avenues in grass, an open, ungrassed and systematically weeded space at least 5 ft. in diameter must be maintained for a minimum of three years after planting. Should weeds or grass be allowed to grow right up to the stem there is every possibility of the young tree succumbing to lack of moisture which will all be absorbed by the roots of the herbage.

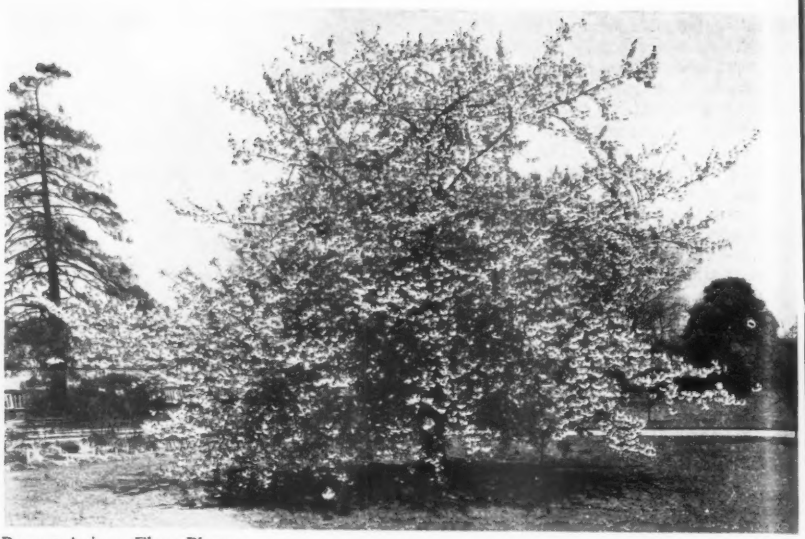
Treatment of Slopes. Instances will occur sooner or later where natural or artificially levelled ground must lead to the problem of dealing with a bank. Where the bank is not more than 3 ft. in depth it is usually possible to adjust the gradient to a degree which is possible for a motor mower or a hand machine. But where it is deeper than this and the slope unavoidably steep there is a problem. On rare occasions it may prove practicable to account for part of the declivity with some architectural feature. For example we are urged to provide drinking facilities for children's playgrounds and it might be feasible to construct this in the bank. Otherwise there are only two ways to treat it. The first is by grassing, which can mean awkward maintenance unless the slope can be divided up and terraced at a convenient point. One half might then be turfed and the other planted with dwarf shrubs (see Lists I and II). The second way, usable where the slope is not more than a few feet, is of course to provide a retaining wall. Since the planting with suitable rock plants of a dry wall is a matter for more than a little technical knowledge of soils and habits of growth, and as the plants themselves should be put in between the different courses while they are in the course of construction, the best thing as a rule will be for the joints to be cement-mortared in the ordinary way.

So far sloping ground has been considered as sharply defined artificial slopes, usually the result of deliberate levelling. Slopes which are natural contours are normally gentle enough to be left undisturbed, either laid down entirely to grass or, if the general appearance should warrant it, with a light grouping of trees large and small.

Factory Sites. During the last war I was concerned with the planting-for-amenity of a large ordnance factory. A few months after the planting was completed, by which time a fair number of the shrubs and small trees had flowered, I met the superintendent who informed me that output had increased during the year by a remarkable percentage. Of this increase he was convinced that a considerable proportion could be positively attributed to the improved morale brought about by plantations and groupings of flowering shrubs.

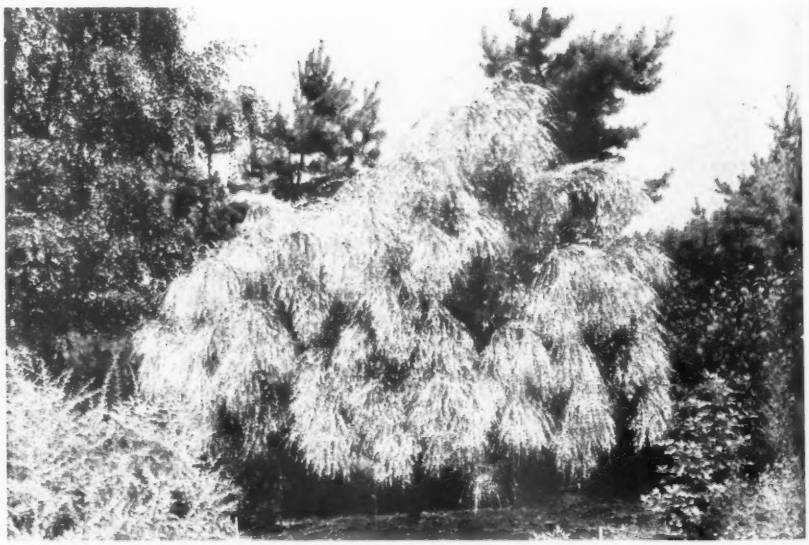
As the total area was very large indeed, the question of siting these groupings had to be thoughtfully considered. In the result the groups were confined to the administrative centre, the canteens, entrances and exits and the chief traffic roundabouts. Care had to be taken when

Quercus Phellos (willow oak)



Prunus Avium, Flora Plena

A fine weeping birch



Genista ætnensis (Sicilian broom), height about 15 ft. (golden flowers)

deciding on what trees to plant to regulate their probable height in relation to overhead cables and wiring systems, for nothing can look more undignified and unsightly than a tree which has to be drastically pruned.

In certain factories the directorate in my experience are usually anxious, wherever room can conveniently be found, that there should be a space set aside say of half an acre or more for a rest-pleasaunce during the dinner break. Any such sites should of course receive special attention with well-proportioned beds breaking here and there into the areas of grass. There should also be allowance made for a certain number of shade-giving trees. In general I would assign 60 per cent of the space available to grass and 20 per cent each to shade-trees and flowering shrubs. The configuration of the planting and the general layout should I believe be as informal as possible as this will be psychologically helpful to people who spend so many hours within rectangular enclosures. Trees in particular should be so grouped as to allow of several bays grass floored, and should in no circumstances be set regularly round the perimeter.

It will be surprising what an interest will be stimulated by gay planting and the presence of trees, and I know of several cases where employees have volunteered to give an hour or two of their leisure time to help the garden staff in maintenance.

Playing fields for factory workers are important but outside the scope of this article.

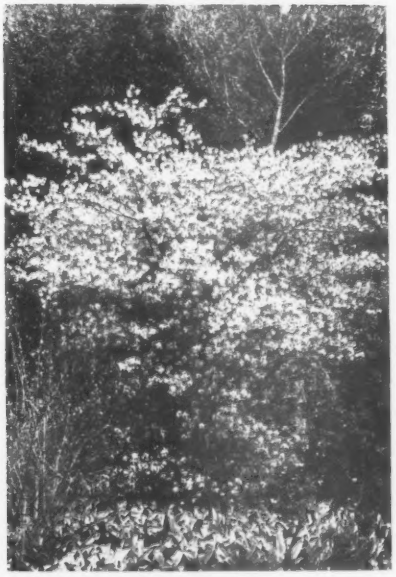
School Sites. I am well aware that one of the first things to be discarded in the overall plans for new school buildings is the proper layout and planting of school grounds. Concrete takes the place of grass and the living beauty of nature—the true heritage and necessary companion of man—is discarded. It is not easy to estimate the spiritual loss to children deprived of their inheritance by so-called economies.

It will be as well perhaps merely to indicate upon what general lines one might plant the very small amount of material which may become available. I would therefore say—keep to fluid loosely extended groups, giving in sum as far as possible the effect that they have at one time belonged all to one extended plantation. Do not in

Quercus Castaniæfolia (Chestnut-leaved oak)

Betula Alba (birch) pendula

A double cherry



Amelanchier (white flowers)

consequence plant individual trees at strictly measured intervals. (It is sound practice to avoid equidistances in every layout except where it may be required by a *necessarily* strict formality.)

A most wise precaution is to enlist at the outset the sympathy of the school staff. It would be of special value to glean the co-operation of the biology master or mistress. Even when youngsters are not deliberately destructive they are thoughtless about the damage that can be done so quickly to bark, stems and shoots—damage that easily attracts disease spores to open wounds with irreparable damage. Carry precaution further and enlist the interest of the children so that each class or one selected member of each class will actually assist in the planting of one tree or one of a group of trees. Physical contact with the plants is the only means of generating interest and loving appreciation—and avoiding hooliganism.

It is difficult in a single article to attempt to indicate the factors that go to make good landscape design in close conjunction with school building elevations. In principle they include the structural architecture of the trees or shrubs as well as the more obvious beauty perhaps of flowers—for they must be beautiful in winter. There is the value of shade for classes held out of doors—the denser canopies of oak, lime, beech and London plane. Such trees as poplars, elms (except the Scotch or wych elm) and willows should be used with care as their roots spread deep and wide. The commonly used Lombardy poplar should be avoided altogether. Its pencil shape is a bad mixer with broad-headed trees and its roots are incredibly voracious. Its sole value in the landscape is as a totally isolated small group where the vertical planes of its growth can be used to add dramatic contrast in a flat context.

Conifers—even larch—will not succeed in the polluted atmosphere of industry—although they will do well in residential surroundings. They must, however, be used

with discrimination as they have strong likes and dislikes, and they must in all cases (larch excepted) be planted as small specimens, never exceeding 3 ft. to 4 ft. at the most. The best deciduous tree combination with conifers will usually be silver birch, mountain ash and whitebeam (sorbus and sorbaria) with the native double white Gean (wild cherry).

Building Estates. Here I envisage the smaller class of grouped buildings, detached or semi-detached, covering a site area of some three to ten acres. There is a likelihood here that there will be in existence one or more groups of trees already. Again these should if possible be retained. At the same time, groups of existing trees will not, all of them, be in equally good condition. In such a case eliminate by grubbing up from the roots, first such as are obviously spindly seedlings. After that it will be best to single out with thought and care individual trees which, because they are too cramped and close, can never develop evenly and to full stature. It will be better to preserve three well or reasonably well shaped trees with good leaders and heads rather than a dozen of which nine are misshapen or otherwise uneven in growth.

The provision of open spaces for small plantations of suitably sized trees should be determined, as far as possible, at the time plans are initiated and should cater for the whole site if it can safely be assumed that subsequent building operations (supposing the whole estate is not erected at one time) will not interfere with growth either above or below ground.

In general, *groups of trees* should be on the northwest through east to the south-east, thus avoiding the casting of shade on windows. Protection will also develop in this method against some of the worst winter weather. *Individual* small trees are unimportant in this respect, and often welcomed for their slight shade in summer.

Again: elms, willows, poplars and unless the open spaces are really adequate, sycamores too should be avoided on account of their strong roots which in some cases are liable to sucker and appear as strong stems above ground many yards away. Silver birch are good and beautiful, but rob the surrounding soil of all moisture.

Do not be too repetitive in planting. Repetition even of a good thing is monotonous. Rather use two or more varieties of a species.

The question of communal back gardens is too large a problem to embark upon here. There is certainly a strong case to be made for them, but I think it is more within the province of the landscape architect of considerable experience. But there is much to be said in favour of no front walls or hedges with the gardens abutting straight on to the pavement. In spite of the passion of the British race to conceal themselves by every means from their neighbours, estates do exist where the graciousness of grass to pavement is tolerated by the inhabitants and the advantage both to a house elevation and general appearance is very striking.

However, in the majority of cases garden walls have to be built, and occasionally

LIST I.—TREES SUITABLE FOR FACTORY SITES IN INDUSTRIAL ATMOSPHERES

A. LARGE TREES	Height	Minimum distance apart for planting
Robinia (Acacia)	20-40 ft.	25 ft.
Fraxinus (Ash), in variety	50-70 ft.	40 ft.
Carpinus (Hornbeam)	50-60 ft.	30 ft.
Tilia (Lime), euchlora	40-45 ft.	30 ft.
Acer (Maple), platanoides (Norway Maple)	50-60 ft.	30 ft.
Acer Schwedleri (purple foliage when young)	50-60 ft.	30 ft.
Platanus (Plane), acerifolia	75-90 ft.	40 ft.
Populus (Poplar), trichocarpa	60-80 ft.	40 ft.
Liriodendron (Tulip Tree)	40-60 ft.	35 ft.
Ulmus glabra (Montana) (Wych Elm)	40-50 ft.	25 ft.

B. SMALL TREES	Average height	Minimum distance apart for planting
Amelanchier canadensis ('Snowy Mespilus')	20-30 ft.	20 ft.
Sorbus, in variety (Whitebeam or Mountain Ash)	20-30 ft.	20 ft.
Prunus, in variety (Ornamental Cherries and Double Gean)	20-30 ft.	20 ft.
Prunus, pissardii (Purple-leaved plum)	20-30 ft.	20 ft.
Prunus, amygdalus (Almond)	20-30 ft.	20 ft.
Laburnum Vossii	20-30 ft.	20 ft.
Cratægus oxyacantha (Thorn or 'May blossom'), in single and double varieties (scarlet, pink, white)	20-30 ft.	20 ft.
Lilac (Syringa), in variety	20-30 ft.	20 ft.

FLOWERING SHRUBS	Distance apart
Berberis, in variety (Barberry)	4-6 ft.
Cytisus*, in variety (Broom)	4-6 ft.
Cotoneaster, in variety (both deciduous and evergreen)	5-10 ft.
Cydonia, in variety (Quince)	4-5 ft.
Deutzia, in variety	4-6 ft.
Escallonia, langleyensis. (Shelter from keen winds)	4-5 ft.
Escallonia Slieve Donard	4-5 ft.
Escallonia, Exoniensis	4-5 ft.
Forsythia Spectabilis	4-6 ft.
Viburnum, in variety ('Guelder rose')	4-7 ft.
Hypericum, in variety	3-4 ft.
Olearia haastii (very hardy)	4-6 ft.
Philadelphus, in variety ('Mock orange')	4-6 ft.
Rhododendron*, in hardy varieties (including Azaleas)	5-6 ft.
Ribes, in hardy varieties (Flowering currant)	4-5 ft.
Rhus cotinus (Sumach)	6-9 ft.
Spiræa, in variety	4-6 ft.
Diervilla (Weigela), in variety	4-6 ft.

* Lime free soils only.

hedges are substituted as a compromise. The oval-leaved privet has swarmed over town and country for this purpose and one has to admit that it has two advantages: its cheapness and its ability to withstand ignorance and maltreatment. It obstinately refuses to die, although I *have* seen hundreds of yards of it cut to the ground or killed after a prolonged frost. In every other respect it is an obnoxious pest-ridden weed, entailing endless attention. When price has to be considered I much prefer a thorn hedge. When every shilling is *less* important, green beech is first class and amenable to all districts, even industrial ones. It prefers, however, a reasonably good soil. As a hedge it maintains its leaves throughout the winter and has no rival for the beauty of its spring foliage. Hornbeam is very similar in appearance and hardier in exposed districts, or in highly polluted atmospheres.

Probably any other type of hedge would be the responsibility of the householder, but an ornamental hedge can be constructed of the highly amenable and hardy cotoneaster simonsii which, even lightly pruned, will carry an abundance of scarlet berries in the autumn. Holly is both expensive and very slow growing, although in the long run it makes a fine impenetrable hedge that can withstand all weathers and wind exposure.

Enlist whenever the opportunity occurs the co-operation of the folk who are to live in the houses even if it means a little extra trouble, and above all *insist* upon the contractors excavating and returning soil in the proper manner and in siting their lime pits

LIST II.—TREES SUITABLE FOR SCHOOL SITES

All those in List I and, in addition, the following. As there will probably be 'empty' land near the outer boundaries, groups of three to five of the under-mentioned could be planted.

A. TREES	Minimum average distance apart
Arbutus, Unedo (Strawberry Tree, evergreen). (Shelter from keen winds)	30 ft.
Acer, campestre (Maple)	40 ft.
Acer, dasycarpum	30 ft.
Acer, rubrum*	30 ft.
Liquidamber	35 ft.
Fraxinus ornus and others (Ash)	45 ft.
Aesculus carnea plantierensis (Horse Chestnut) (this does not set fruit)	45 ft.
Aesculus, hippocastanum florepleno (this does not set fruit)	50 ft.
Ulmus sarniensis (Wheatleyi), Cornish Elm (and others)	30 ft.
Ginkgo (Maidenhair tree)	40 ft.
Parrotia persica	15-20 ft.
Salix, in variety (Willow), particularly S. Chrysocoma, daphnoides, matsudana, chrysostella	40 ft.
Quercus, in variety (Oak)	45 ft.

B. FLOWERING SHRUBS	Minimum average distance apart
Ceanothus floribunda (evergreen)	5-7 ft.
Ceanothus topaz (deciduous)	4-6 ft.
Choisya ternata (Mexican 'orange blossom') (evergreen)	4-6 ft.
†Genista hispanica (Spanish gorse) (evergreen)	4-5 ft.
†Ulex europacus florepleno (double-flowered gorse) (evergreen)	3-4 ft.
†Lavender, in variety (evergreen)	2-3 ft.
Pyracantha, in variety (Firethorn) (evergreen)	4-6 ft.

* Lime free soils only.
† Prefers light sandy soil.

away from the place where grass and plants are to follow. Trees take far longer to grow than houses, so that when and where there is an area where planting can be carried out at an early stage in the site development and disturbance can be avoided, it is advisable to put in the trees selected as soon as possible.

Do not overlook the value of built-in window boxes but be sure that rain can reach them and there is sufficient headroom for air circulation. In short take advantage of any opportunity for plant life, but do not so spread the ultimate effect that it becomes a patchwork, for nothing could look worse. Go for bold, well-balanced concentration and allow room for green grass.

All subsidiary drives and paths must be sited for the convenience of the users. People will make short cuts across lawns and grass unless the access is plotted so that short cuts over the grass are of no advantage.

Public Buildings. How much more attractive would many of our concert halls and theatres be had previous generations possessed the foresight to set them back sufficiently to allow of even a few score feet of open space for the planting of trees and flowering shrubs. To this lack of foresight must of course be added the avarice of ground landlords determined to extract the maximum return in rentals. That outlook of course still obtains and to wrest any land upon which a building might be put up and to lay it out for the happiness and pleasure it will bring by reason of its colours and greenery, is a herculean undertaking. I do not wish to be too sweeping in this assertion and I know there are a few exceptions.

I am concerned more with existing buildings which are in process of being rehabilitated. In more than a few instances advantage could be taken to plant trees in the grounds of some of them—and two or three instances spring readily to my mind. Specially selected trees would add a seemliness and 'co-operate' in dignity with the restored building. Far too often one has to witness the juxtaposition of little wriggling beds of wallflowers and antirrhinums with a building of the 17th or 18th century, and how futile and inharmonious is the combination!

In town and city centres there are various considerations which rule out the possibility of such trees as oaks and beech, but there is no reason that I know why for example use should not be made of the whitebeam (Sorbus) in two or three of its varieties. The species has been known in this country for several hundred years and to that extent is indigenous. They vary in height from 20 ft. to 30 ft. or thereabouts and are handsome in shape, build and proportion, added to which some have foliage which is felted beneath with silver and they carry fruit very similar to the mountain ash. They are completely hardy and are content in any 'garden' soil. Three others come to mind, the so-called Judas tree (Cercis siliquastrum) often curiously twisted or gnarled in maturity. The rounded leaves are always remarkable while the crimson-pink pea-shaped flowers which are stalkless, are an unforgettable sight in May. The dying foliage is a translucent yellow. In maturity it will reach about 30 ft. The tulip tree (Liriodendron) is another, handsome and sufficiently dignified to grace the London Law Courts where in 1949 the flowers, not unlike ivory green tulips, excited much newspaper wonder. The saddle-shaped leaves are most distinctive. This tree requires plenty of space and considerable headroom, but the American 'sweet gum' tree (Liquidamber styraciflua) will take 40 years to attain as many feet. A soil that never becomes dried out is essential. The maple-like leaves between September and November assume the most wonderful tones of purple, crimson and flame. There is a fine specimen in Kew Gardens. The 'manna-ash' (Fraxinus ornus) should be far more widely planted. Growing to about 30 ft. or 45 ft. normally, it is extremely leafy, of fine shape and produces in May whitish flowers in great abundance. Like most of the ash family it is not particular about soil, although preferring a good one and sufficient moisture.

It is insufficiently realized to what an extent a belt of trees will insulate buildings from sound—as it does from bomb-blast. Apart from the marriage between tree and blossom without and music within a concert hall, it would indeed be pleasant not to suffer the cacophony of trams, buses and screaming gears in the quiet passages of a symphony!

Purchase of Trees and Shrubs. When ordering trees and shrubs it is well worth while to go to a nursery of repute who are tree specialists. The local nurseries can rarely be expected to grow trees properly and certainly they will not have any selection. Many of their shrubs may be unsuitably grafted—lilacs for example should properly be grown from cuttings and not from grafts on to privet or common lilac.

The price of a well-grown tree is usually slightly dearer than one bought 'round the corner'. The reason for this is natural. All trees for sale must be regularly transplanted in the nursery. This repeated movement ensures that when they finally depart to their destination they possess a compact root system of short fibrous growth. Consequently the chances of loss, even of check, are reduced to a minimum. This handling in the nursery means higher overheads and therefore a shilling or two on the price. But in no circumstances should shoddy material be bought from the local dahlia-cum-geranium grower.

There is, I am well aware, a certain dislike of buying trees from southern nurseries and planting them in the north. Personally I have never experienced any harmful results from buying in Dorset, Kent, Surrey or Hampshire and planting in the west and north-west, but I should hesitate to buy from a south-western nursery and plant on the east of England because of the considerable difference in rainfall as between east and west. There are several good tree-growing nurseries in the eastern shires. All first-class nurseries pack their plants with extreme care and no harm comes even with two or three weeks travelling. Planting time begins about mid-November and lasts till mid-March for all deciduous (leaf-losing)

LIST III.—TREES SUITABLE FOR BUILDING ESTATES

According to whether in industrial or residential semi-rural districts, most of Lists I and II are suitable, but the following, by reason of their far-reaching roots, should not be planted within 30 yds. of any building or sewerage system. Ash, Lime, Plane. Poplar, Elm, Willow.

LIST IV.—TREES WITH ARCHITECTURAL VALUE

A. FASTIGIATE, OR NARROWLY COLUMNAR IN GROWTH	Height	Width
Ulmus sarniensis (Wheatleyi) (Cornish Elm)	70-100 ft.	25-35 ft.
Betula verrucosa pyramidalis (Birch)	60-70 ft.	20-35 ft.
Carpinus betulus pyramidalis (Hornbeam)	60-70 ft.	20-35 ft.
Fagus sylvatica fastigiata (Beech)	60-80 ft.	25-35 ft.
Populus alba pyramidalis (White Poplar)	60-80 ft.	25-35 ft.
Prunus erectus (Cherry)	20-30 ft.	6-8 ft.
Quercus pedunculata fastigiata (Oak)	50-60 ft.	25-30 ft.
Taxus baccata fastigiata (Irish Yew)	25-45 ft.	7-12 ft.

B. TREES AND LARGE SHRUBS OF WEEPING HABIT

Allow plenty of space. Spread often exceeds height.

Betula, verrucosa pendula (Birch)	Tree
Betula Youngii	Tree
Cotoneaster multiflora	Large shrub
Cotoneaster lactea (and others)	Large shrubs
Fagus sylvatica pendula (Beech)	Tree
Forsythia suspensa	Shrub
Populus tremula pendula (Aspen)	Tree
Prunus avium pendula (Wild cherry or Gean)	Tree
Prunus ivensii	Small tree
Prunus subhirtella pendula	Small tree
Prunus, 'Cheals weeping'	Small tree
Salix. Salamoni (Willow)	Tree
Salix vitellina pendula	Tree
Tilia petiolaris (Lime)	Tree
Ulmus montana pendula (Wych Elm)	Tree

C. TREES FOR HEAVY, WET SOILS

Few trees or shrubs take kindly to ground which is almost continually saturated, but the following are the most accommodating. When the roots can reach to running water nearly every tree and shrub named is more than content, but this is very different from permanently swampy ground.

Those marked * if they can be pollarded annually show magnificent bark colour in the new growth.

Alnus glutinosa (in variety) (Alder)	Tree
Hippophae rhamnoides (Sea Buckthorn)	Small tree
Picea Sitchensis (Sitka Spruce)	Tree
A large number of Willows and Poplars	
*Salix (Willow) britzensis, chrysostella, daphnoides	Tree
Taxodium distychum (Swamp Cypress)	Tree

Both the Spruce and the Swamp Cypress should not be attempted in industrial atmosphere. The latter eventually makes a very large tree with an immense root spread.

trees and shrubs. Evergreens can be best planted in September, October, April and early May, but any winter month will usually be safe. Never plant in frosty weather or in wet soil. And when planting have the roots always in a well moistened condition, particularly with evergreens. The soil ball on evergreens must never be disturbed or even loosened or the plant will collapse. (Deciduous trees are best obtained at a height of 5 ft. to 7 ft., deciduous shrubs from 3 ft. to 4 ft., and evergreens between 2 ft. and 3 ft.)

A first-class nursery is the father of its plants and feels the same sense of responsibility for its progeny.

Planting and Maintenance. This is not a difficult matter if the work can be handed over to a nursery which can be relied upon. Planting of shrubs and even more so of trees is not a simple matter and in my experience even head gardeners of private estates are singularly ignorant and careless. Roots of deciduous plants must be spread evenly outwards and pointing downwards, the interstices of the fine rootlets carefully filled in with crumbly soil and when the roots *are well covered* but before the final 3 in. are spread the whole root area must be rammed or stamped down forcibly and extremely firmly. The top 3 in. must be loose, friable and dead level.

Where the site is exposed to high winds the staking of standard trees and any with particularly heavy heads is necessary. The point or points where the tree stem will touch the stake must be firmly protected by a band of some material—strips of sacking will serve—otherwise the bark will be chafed and this will cause inevitable damage, and possibly even death. As the tree grows these ties will tend to choke the flow of sap. They must be examined at regular intervals and replaced whenever necessary.

The remainder of the maintenance needed consists of weeding at monthly intervals and the problem of pruning. Unless really expert help is available, pruning is rather complicated. In my opinion better no pruning at all than that it should be done without some experience. An average 'jobbing gardener' will trim off every flower-producing branch, no matter what the plant may be and reduce them all till they resemble green footballs. Every possible effort should be made to ensure that proper maintenance is forthcoming.

Conclusion. An attempt has been made in these notes to afford some help to architects who are faced with the necessity of laying out some of the ground surrounding newly erected buildings, and are at a loss to know how to begin and what to plant.

The subject and its full treatment is a vast one but it is hoped that these necessarily sketchy notes will offer some means of obtaining reasonably good effects.

Work of this nature is of course the particular realm of the landscape architect and it is difficult to convey on paper his methods of approach to any given problem. But a trained man of experience will ponder over the problem and consider whether the best effects will come from form and line, from mass groupings, from colour and shadow and so on. In less than the length of a substantial book it is quite impossible to deal with colour and form combinations and contrasts, and for this reason no attempt has been made to cover the question or even to give in the various lists the colours of the flowering shrubs, for every shrub mentioned and many of the trees are distinguished either by blossom or berry—many by both.

In the humble opinion of the writer success can only be achieved in landscape planting even in a reasonable measure by actual experience. From this comes the sense of where the various components—line, form, colour, etc., are best disposed for effect. It is hoped that these notes have done something to suggest the necessary balance of these parts as well as to give some solid facts.

For those who would like to know more about trees and shrubs and their maintenance—and few 'jobbing gardeners' have even the faintest knowledge of them—I recommend the following books:

Trees and Shrubs. By W. H. Rowe. Penguin Handbook.

Shrubs in Colour and Cultivation. By T. C. Mansfield. Collins.

Flowering Shrubs and Small Trees. By N. Catchpole. Collingridge.

Review of Construction and Materials

This section gives technical and general information. The following bodies deal with specialized branches of research and will willingly answer inquiries.
The Director, The Building Research Station, Garston, near Watford, Herts.
Telephone: Garston 2246.
The Officer-in-charge, The Building Research Station Scottish Laboratory, Thorntonhall, near Glasgow.
Telephone: Busby 1171.
The Director, The Forest Products Research Laboratory, Princes Risborough, Bucks.
Telephone: Princes Risborough 101.
The Director, The British Standards Institution, 28 Victoria Street, Westminster, S.W.1.
Telephone: Abbey 3333.
The Director, The Building Centre, 9 Conduit Street, W.1. Telephone: Mayfair 8641-46.
The Director, The Scottish Building Centre, 425-7 Sauchiehall Street, Glasgow, C.2.
Telephone: Douglas 0372.

National Brick Advisory Council. On behalf of the Ministry of Works the technical committee of the N.B.A.C. have published Paper No. 6, entitled 'Clay Brickmaking in Great Britain', written by A. Miller, B.Sc. [*A*], of the Building Research Station.

This paper is a survey of the methods used in brickworks in Great Britain, and the figures all relate to pre-war conditions. Ten maps of England and Wales show the locations of works and area densities of production. Statistical tables give the number of works and plants, classified under headings of process, geological description of clay, method of clay-getting and removal of overburden, kind of kiln used, and so on. The Ministry of Town and Country Planning contribute an appendix of geological formations and distribution of brick clays.

Although the document is perhaps of most value to research workers and others concerned in the clay brick industry it is well worth studying by architects who like to have some knowledge of the raw materials which they use in a finished state. Perhaps not everyone could say off-hand under how many geological descriptive headings clays suitable for brickmaking can be ranged; Mr. Miller deals with 14. It might be a useful lesson for students if they were to take these headings and enter under them the various varieties of bricks that are available.

Perspective Projection. Within recent years several methods and instruments have been brought out with the object of lessening the labour of setting up perspectives, and Messrs. Halden and Company have now produced what seems to be the simplest of them all. The apparatus consists of a small electric lamp giving a very bright and almost point light, adjustably mounted on a vertical rod; a vertical board for holding drawing paper, and a movable holder for placing between the light and the board. The board and light fitting are held together by a metal frame.

An outline elevation is drawn on a transparent and non-grainy material, such as ethulon, and is placed in the movable holder. The board and light source are then placed over the plan at any desired angle. The frame holding the elevation is put parallel to the plan so that the marker on the foot of the frame coincides with any desired point on the plan. The elevational outline is therefore at an angle to the axis of the light, and consequently an image of the elevation is thrown on to the board in perspective. By making pencil marks on the drawing paper on the board, and moving the elevation holder about, all necessary elevational points can be marked on the paper and joined up afterwards. By moving the light up or down on its rod, bird's-eye or worm's-eye viewpoints can be represented. The name of the apparatus is the Meredith perspective projector, and a patent has been applied for by Messrs. J. Halden and Co. Ltd., of Trafalgar House, 9 Great Newport Street, London, W.C.2.

Pyrotenax M.I. electric cable. Changes in the methods of enclosing and protecting electric wiring that have occurred since the old casing-and-capping days have not always been improvements. Every system seems to have at least one weakness. The ideal system should protect the wiring and its insulation against physical damage during installation or by subsequent abrasion or blows or the teeth of rats and mice, against damp from condensation or other ingress of moisture and against excessive heat ; it should preferably be easy to install and finally it should earth itself effectively if and when the insulation perishes or when the circuit breaks down for any reason. Readers may therefore be reminded of a system that is not new but is being increasingly used and that seems to be totally free from most of the common disadvantages; it is called Pyrotenax M.I. cable, and is a complete conductor, insulator, and conduit in itself.

In this system copper conductors are surrounded with highly-compressed magnesium oxide insulation which is packed within a copper sheathing. Means are taken for keeping the conductors in their proper position during the filling process. The cable can be had with 1, 2, 3, 4 and 7 cores. The makers state that it will withstand temperatures up to 1,000°C., at which point the copper sheathing will melt, but up to this temperature it will continue to carry 660 volts; it is not recommended, however, that the cable should operate continuously at more than 250°C., as above that point progressive oxidation of the copper sheath occurs. As the magnesium oxide insulant will remain mechanically and physically stable up to 2,800°C., it is obvious that the cable will continue to function even in the heat of fires. As the insulant is incombustible, electrical faults will not ignite it, and therefore in normal circumstances can not initiate a fire. The copper sheath and the insulant are not affected by moisture or hot, humid atmospheres. If the cable is injured by, say, a blow from a hammer, all parts are flattened and a proportionate thickness of insulation remains between conductors, and between conductors and sheath.

Although the cable is ductile enough to be bent round corners, it is sufficiently rigid not to sag between supports, and as it is small in diameter, considering its current-carrying capacity, a neat layout can be made.

One point calls for attention; if the ends of the cable are left exposed the insulant will 'breathe' and give low insulation resistance at these points; the ends should therefore be sealed by special plugs, which can be put on the cable with simple tools and without the use of heat. There are appropriate fittings for entry into boxes, and flexible sleeving is supplied to cover the bared ends of the conductors within the boxes.

The cable is useful in factories as it can be bent round the contours of machinery and is not affected by lubricants. Furthermore, lengths can be taken out and re-used on other circuits, as the cable does not deteriorate in storage.

Inquiries should be addressed to Messrs. Pyrotenax, Ltd., whose London office is at 7, Victoria Street, S.W.1.

Accidents in the home. In 1946 the Domestic Accidents Panel of the Scientific Advisory Committee to the Ministry of Works instituted an inquiry into the causes of accidents in the home. The report is now available: it is not intended for general publication but is available to research workers and students on request to the Ministry of Works. The Introduction quotes the 1946 report of the Chief Medical Officer of the Ministry of Health, in which he says: 'One cause of mortality . . . is accidents in the home . . . from 5,000 to 6,000 such fatal accidents occurred in 1942. A special study of this subject should lead to the accumulation of information on house planning and equipment that could be used with great profit by architects and technicians.' An immediate result of this report was the setting up of the Domestic Accidents Panel (now dissolved) and in 1947 the Home Office set up the Standing Inter-departmental Panel on Accidents in the Home. The work was carried out by the Chief Scientific Adviser's Division of the Ministry of Works in co-operation with a number of local authorities and voluntary bodies.

The section in the report of the Panel of most interest to architects is that headed Accident Factors in Structure and Equipment. Statistics are tabulated from material

gathered from Home Visitors' reports, Birmingham Accident Hospital interviews, and from six London hospitals. The total number of accidents listed under the heading was 565, of which number 342 occurred in living-rooms and kitchens, 94 on stairs, and 34 in doorways, passages and halls; 178, or about one-third of the total accidents, were put down to structural or equipment causes. Under the heading Design of Structure 19 accidents are attributed to steep or awkward stairs; 17 to outside steps; five to steps indoors, and five to outside W.Cs. Lack of maintenance, such as defective flooring, stairs or handrails, caused 65 accidents, while poorly-constructed, ill-placed, defective or misused equipment accounted for 39 accidents.

The report suggests that further study should be made into the design of staircases, and recommends that handrails should be continuous and on both sides of staircases; that winders should be avoided but where unavoidable they should be provided with continuous handrails; and that the position of stairs and steps should always be obvious. Single steps which may be overlooked, and staircases which start their descent in unexpected places, should be avoided.

The report is based mainly on a survey of accidents occurring in old houses and in those that have not been kept in a good state of repair; nevertheless the rightness of the warnings is emphasized by the Housing Manual of 1949, which says: 'The stairs should have direct light and ventilation. Where direct light is impracticable, as in some terrace-type houses, some form of indirect lighting is essential. Though it is desirable to avoid winders, this in some plans would mean a disproportionate sacrifice of space, but where provided they should be at the bottom rather than at the top of the stairs.' This suggestion is carried out in most of the plans illustrated in the Manual.

The occurrence of falls on staircases is also the subject of an article submitted to the JOURNAL giving the results of a survey carried out by a special study group of students of the London School of Hygiene and Tropical Medicine; the houses concerned being 75-100 years old. The article says that more than half the deaths due to home accidents are caused by falls, the greater proportion occurring on stairs. It is interesting to note that in no case could an accident be attributed to the presence of too much light, such as glare from a window facing the stairs, or the contrast of deep shadows, and it seems that such possible dangers have been over-emphasized. The survey did not discover any reason to suggest that the length of a flight gave rise to an accident, a long flight might even engender greater caution; but it is suggested that the best arrangement seems to be where the stairs are in three flights, the main flight being approached by a shorter one at right-angles, at top and bottom, with no winders. Several accidents occurred while persons were carrying things when going downstairs, both hands being occupied. A smooth, continuous rail at the bend would have enabled them to get some support by keeping their elbows over the rail. Handrails on both sides of the stairs would be of value to the elderly and infirm.

Ministry of Works Exhibitions. The Ministry of Works have announced their preliminary arrangements for exhibitions in 1951. That on *Modern Building* (site organization, plumbing, thermal insulation, and Codes of Practice) will be shown at Leicester, 18–24 January; Newcastle, 5–14 February; and Carlisle, 22–28 February. *Careers in Building* (training and work of apprentices), Leicester, 18–24 January; Manchester, 5–10 February; and Sunderland, 5–10 March. Showings of the documentary films *The task before the Building Industry*, *Care and maintenance of Plant*, and *Watch your step*, have been arranged in several provincial towns.

Relative humidity. So many terms, such as relative humidity, moisture-content, or percentage humidity, are found in considering air conditioning, evaporation and condensation that confusion sometimes occurs; and therefore it is well to be sure that they are clearly defined and are being used in the same sense by scientists and by the ordinary man-in-the-building. Those persons whose schoolday physics have got a little rusty may well refresh their memories by reading *Drying in the Heavy Clay Industries*, being Paper No. 3 of the National Brick Advisory Council, Ministry of Works, written by H. H. Macey, M.Sc., A.R.C.S., D.I.C., F.Inst.P., M.Inst.F. Therein Mr. Macey deals with the subject in a clear and concise manner that makes most interesting reading.

After explaining the principles of vapour pressure, and reminding us of the laws of Boyle and Charles, Mr. Macey tells us that at conditions less than saturation, the actual vapour pressure is less than the saturation vapour pressure at the same temperature. The humidity may be stated by comparison of these two pressures, and this is the *relative humidity*, which is therefore the ratio of the actual vapour pressure to the saturation vapour pressure at the same dry-bulb temperature, expressed as a percentage. So familiar is this term that when a humidity of 60 per cent is mentioned, it is taken to mean relative humidity. This conception is of most value where we are concerned with the reaction of hygrometric substances to the atmosphere they are in, for the amount of water absorbed by them depends primarily on the relative humidity and not on the temperature if the temperature range is not too great. But the relative humidity is not the measurement of one single factor, as it involves both the actual and the saturation vapour pressure. Assuming that no drying is done by the air and no additional water vapour is picked up, but the temperature changes, then the relative humidity also changes and may lead to the erroneous conclusion that drying has taken place, whereas the amount of water vapour is in fact the same. Mr. Macey therefore prefers to consider the weight of water vapour carried by a definite weight of air; thus—in the case mentioned above—the weight of water vapour would have been the same although the temperature changed, showing at once that drying had not occurred.

If weights of water vapour are substituted for vapour pressures, we have the *percentage saturation*, alternatively known as the *percentage humidity*; that is, the percentage ratio of the actual weight of water vapour in a pound of air to the weight that air would contain if saturated. Although this conception is similar to that of relative humidity, except that weights and not vapour pressures are used, the two are not the same, especially at higher temperatures, and must not be confused.

The moisture-content and the *absolute humidity* are not ratios but simply expressions of the weight of water vapour present, on a weight and volume basis respectively. *Moisture-content* is the weight in grains of water vapour associated with one pound of dry air and is the most convenient method of expressing humidity for drying purposes; *absolute humidity* is the weight of water vapour in one cu. ft. of air and suffers from the disadvantage that the volume of air changes with the temperature, so that the absolute humidity, like relative humidity, changes with temperature although the amount of water vapour remains the same. Care must be taken with this latter term as it is sometimes used with other meanings, but the definition given above agrees with American practice.

British Standards Institution. *Annual Report* 1949–50. This report gives details that show how the work of the Institution is growing; the number of committee meetings has risen from 1,405 in 1944–45 to 2,809 in 1949–50, and in the same interval the number of British Standards sold has gone up from 348,700 to 480,836. The report says that in assessing the relative importance of suggestions for new Standards it would be useful to know the extent to which existing ones are used, and such an appraisal would also provide information to encourage and reward all those people who give so generously of their time on committees, sub-committees and panels. For this purpose machinery has been set up for a general survey of the extent to which British Standards have become an integral part of the mechanism of production, purchase, testing, and distribution of goods and services.

British Standards Recently Published

B.S. 1310: 1950. *Coal tar pitches for building purposes*. This Standard covers normal high-temperature pitches and two kinds of special pitches, low-temperature and steam-blown. Appendices give methods of test and the applicability, such as waterproofing brickwork and concrete, saturant for pitch roof felt, membranes in concrete floors, hot coatings for buried steelwork, paint for use on iron and steel, and flooring. Price 3s. net, post free.

Some Studies on Lighting and Vision in Schools *

By W. A. Allen, B.Arch. [*A*]

RECENT YEARS have seen major advances in knowledge about school lighting, but they have had to be based upon limited information about children's vision. This needs sufficient study to provide a reliable basis for practice, and the Building Research Station has consequently felt it necessary to give it attention. This note describes some findings from recent work at the Building Research Station, a full report of which has been published in the Journal of the Illuminating Engineering Society for August 1949 (Hopkinson). The work has been conducted under the general guidance of the Joint Committee on Lighting and Vision of the Medical Research Council and the Building Research Board.

Problems Examined

Visual acuity is the ability to discriminate and perceive detail. The mechanism by which detail is resolved is not completely understood. Partly it is a matter of accurate focusing, but it can not be only this, for if it were, the same detail could be resolved over a wide range of illumination levels, whereas acuity continually increases with increasing illumination (certain other things being constant).

The proper illumination for any particular kind of work depends on the size of the critical detail to be resolved and the acuity required to resolve it. Enough is known about adult vision and the differences in acuity in adults to be able to predict accurately the illumination required for any given kind of work; that is, the illumination which will enable a reasonable proportion of people to see the detail properly. Similar work on children's vision has now been carried out.

A representative sample of adults will show a certain proportion with 'normal acuity' and lesser proportions with acuity which is either better or worse than normal, the proportions being smaller the farther the departure from the normal. It would be wrong in practice to provide illumination which is appropriate only for those with normal or better than normal acuity, for this would leave a substantial number with insufficient light. Enough light must be provided to compensate for the subnormal vision of part at least of the deficient proportion, but it would be impractical to attempt to compensate fully for very deficient vision. The question is where to draw the line.

The first necessity is to determine the distribution of acuity among children as had been done for adults. Through the courtesy of Professor Arnold Sorsby of the Royal College of Surgeons a suitable sample of children was made available for study.

The charts of graded lettering used for eye tests are well known. These so-called Snellen Charts were used for the present studies, but in addition to the usual black letters on white cards, white letters on grey and black cards were used, in case a resemblance to blackboard conditions should prove to be significant. The cards were illuminated at various levels ranging from 0.1 f.c. to 300 f.c. Hopkinson's paper in the Illuminating Engineering Society Journal should be consulted for detailed results of these and the other studies which will be described here.

In general, no optimum level of illumination is suggested as a result of the tests. The acuity of all children improved with increases of illumination over the whole range of values, but children with subnormal vision benefited more than the others. The 'blackboard' type of chart appeared to give slightly better results than the black-and-white arrangement, apparently confirming the soundness of a practice which presumably came into existence mainly through its convenience. Some suggestions on the levels of illumination for blackboards are made later in this note.

The 'blackboard' type of chart was given further study to find out how high the reflection factor could be allowed to rise while still providing sufficient contrast for good vision. It was assumed that white chalk would generally be used, and the reflection factor of this was measured. It was found that the highest reflection factors acceptable for the board were about 40 per cent. at 100 f.c. and 25 per cent. at 3 f.c. These values appear to be critical, for acuity falls off rapidly if contrasts are further reduced. In practice this means that a reflection factor of about 30-35 per cent. would be the upper limit under the illumination prescribed in the Regulations (10 f.c.). Some allowance has to be made for a rise in reflection factor due to the accumulation of chalk, and it is considered that the clean board should not have a higher reflection factor than 20 per cent. The value of finding the highest acceptable reflection lies in the range of colours which it becomes possible to use for the boards.

In the studies which have been described it was observed that, apart from changes in acuity when illumination was increased, there were obvious changes in the strain suffered by children in their attempt to resolve details on the charts. In fact it seemed to the investigators that relief from strain was more marked than improvements in acuity when illumination or contrast was increased. Strain is difficult to measure, but a performance test seemed more likely to give information about it than the use of charts. A simple performance test is the reading of unfamiliar material, especially if its style is not very lucid. Passages of about 16 lines were taken from a published report which met this criterion. The print was Times Roman Type, which offers no special difficulties due to typography. The passages were set up in black-on-white, and white-on-grey or black (as with the charts). Different passages were used to prevent observers from using their memory to help them in reading.

In a chart test the problem is to identify details, and these usually either can or can not be seen, so that strain passes quickly and can not be appraised. In reading, on the other hand, the reader has to scan forward to discover meaning, and by noting the time taken to read a passage, a measurement of the difficulty or strain is obtained. In these tests the passages were attempted by the observers at various distances, for various contrasts and degrees of illumination. In addition, pace of performance was appraised by a subjective method which enabled the visual acuity as assessed by the Snellen test chart to be compared. One result of this was to demonstrate that the visual performance of a child in class can not be assessed reliably by his Snellen test chart reading.

In order to interpret these and the other tests which have been described, it was necessary to have some idea of the actual visual difficulty of school work. An analysis of this was carried out by Medical Research Council investigators directed by Mr. H. C. Weston. Some of the critical detail is found on blackboards, and the investigators therefore noted carefully the sizes of letters and numbers commonly occurring on blackboards, the reflection factors of boards and chalk, and also the size of letters on wall-charts, graphs and displays. These data were used in drawing conclusions from the studies.

Conclusions from the Studies

For purposes of argument 10 f.c. is a useful figure on which to focus attention. It is the level required by the Regulations,† and it appears to be a critical level in relation to visual performance. At this level about 80 per cent. of children achieve what can be called fairly normal vision. They will be able to read a letter ¼ in. high on a blackboard if they are sitting in the front row of an orthodox classroom, and from the back row they can read letters ¾ in. high. This should cover all normal classroom requirement. It is well known, of course, that formal teaching from the blackboard is often now replaced by less formal methods, using small groupings of students, and this is especially so with young children; but the figures given will provide designers with a familiar reference level, and regardless of teaching method the criterion is probably adequate, because vision up to distances of 25 ft. is likely to continue to be

† Regulations Prescribing Standards for School Premises, 1945, S. R. & O. 1945 No. 345.

necessary in most classrooms for some proportion of the time.

One of the surprising findings from the studies recorded here was the relative effect of increased illumination and decreased viewing distance on ease of reading. The same improvement is obtained by moving 4 ft. nearer to a blackboard as would be obtained by raising the level of illumination 30 times.

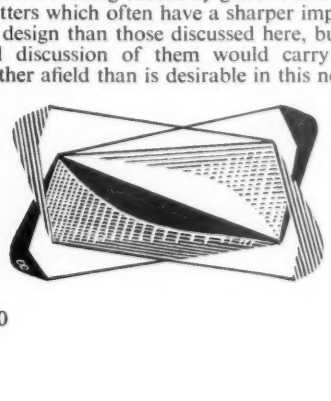
The visual difficulty of the teaching material increases in the more advanced classes. In the teaching of algebra and trigonometry for instance, it has been found that teachers commonly employ exceptionally small symbols. If this is generally true it may be worth considering whether the level of illumination for advanced students should not be greater than that for the subjects taken by younger students. It might be desirable, for instance, to aim at some such value as 20 f.c. rather than 10, at least in the areas and on the surfaces from which formal teaching is done.

Though the data cover only a part of the illumination problem, they relate to tangible significant factors, and they are unlikely to be much in error. Such evidence as is available from the less tangible factors supports them. For instance, it appeared to be the case that teachers find it possible to maintain a better control over children and a higher level of attentiveness in well-lighted than in poorly-lighted classrooms. Attentiveness in a child depends largely on his being able to see clearly what he is supposed to be following, and any study of such factors as these in classrooms is likely on present evidence to support higher rather than lower values than those mentioned.

Some attempts were made before the war to use light-coloured chalkboards with dark chalks. The evidence from these tests is in favour of white lines on darker surfaces. Coloured chalkboards with reflection factors lower than 20 per cent. should give satisfactory conditions when white chalk is used on them, even when there is an accumulation of chalk on the board.

Reference to foot candle values in this note should not be taken to mean that the discussion relates solely to artificial light. The present requirements for day-lighting often result in levels of illumination of the order of those discussed here, and the results are relevant to the whole problem of classroom illumination.

All opinions and data mentioned are based on the assumption that no appreciable visual disability, discomfort or distraction is being caused by glare. These are matters which often have a sharper impact on design than those discussed here, but a full discussion of them would carry us farther afield than is desirable in this note.



Practice Notes

Edited by Charles Woodward [*A*]

IN PARLIAMENT. Land Development Claims. Asked whether his attention has been drawn to the fact that Section 62 (1) of the Town and Country Planning Act, 1947, and Section 59 (1) of the corresponding Scottish Act, produce inequitable results in relation to certain claims made under those Acts; and what action he proposes to take to overcome this anomaly, the Chancellor of the Exchequer replied: The Chairman of the Central Land Board has reported to me that examination of the claims under Part VI of the Town and Country Planning Act, 1947, discloses that one of the provisions of Section 62 (1) is giving rise to serious anomalies in some cases.

It may happen that a piece of land, owing to its proximity to land developed in a particular way, such as an isolated factory, may have had a high value before the Act for the purpose of extending that development, but, apart from the prospect of that special development, had little value save for the purposes to which it was actually being put.

Sub-section (1) of Section 62 of the Town and Country Planning Act provides that Rules (2), (3) and (4) of the Rules set out in Section 2 of the Acquisition of Land (Assessment of Compensation) Act, 1919, are to apply in computing values under Part VI as they apply in relation to the compulsory purchase of interests in land. Rule (3) provides, among other things, that the special suitability or adaptability of land for any purpose shall not be taken into account if that purpose is one for which there is no market, apart from the special needs of a particular purchaser. Where, on the appointed day (1 July 1948), a piece of land was, in fact, held by the owner of the adjoining land to whom—and to whom alone—it possessed this special value, the effect of Rule (3) is to reduce to little or nothing the development value disclosed by the claim, despite the fact that a substantial development charge may be incurred if the piece of land is, in fact, developed in this very likely manner.

I have, therefore, requested the Central Land Board, when valuing claims under Part VI to proceed on the basis of disregarding the provision in Rule (3) referred to above, in cases where the land was held before the appointed day by the claiming owner for the purpose of development in connection with his business carried on on adjoining land. Before the scheme is finally made, amending legislation will be needed to give effect to the arrangement which I am now describing, but from now on the Central Land Board will, at my request, proceed on the amended basis.

The arrangement which I have described will apply to claims of owners of land held for the extension of their own factory. It will also apply, in some cases, where a building or a plot of land adjoining a commercial property was held before the appointed day for incorporation within that property. It will not apply to any case where the land was not owned on the appointed day by the person to whom it had this special value. Moreover, it will not apply to cases where it is claimed that a dwelling-house might be extended over its garden; or to increase the unrestricted value of a part of a building above that which it would have in the open market, apart from the needs of the owner of the remainder.

It would not be practicable at this late stage to allow further claims to be made on the £300 million, even though potential claimants deliberately omitted to put in claims within the time limits prescribed by the Act and regulations, because they were of opinion that the application of Rule (3) would render a claim fruitless. I can not at present—before the scheme to be made under Section 58 has been drafted—say what steps it will be necessary to take to meet cases of hardship which may be found to have arisen from this cause. If any such cases are notified to the Board, although no action with regard to them can be taken at present, they will be carefully recorded for such consideration as it may be decided to give to them at a future date. The same difficulties arise under Section 59 (1) of the Town and Country Planning (Scotland) Act, 1947, and will be dealt with in the same way (15 December 1950).

Form C.V. 121. Asked if he would identify the regulation which authorizes the issue of Form C.V.121 by the Central Land Board; and why the text of the form has recently been changed, the Chancellor of the Exchequer replied: The issue of Form C.V.121 is authorized by sub-sections (2) (3) and (4) of Regulation 12 of the Claims for Depreciation of Land Values Regulations 1948, S.I.1948, No. 902. The text of the form was recently altered in order to make it clear that a claimant who objects to the Central Land Board's valuation may, if he chooses, supply the development value figure only, although the Board prefer that he should give all three figures named in Part II of the form (15 December 1950).

MINISTRY OF TOWN AND COUNTRY PLANNING. Central Land Board. A Practice Note on development charges in respect of minerals, issued by the Central Land Board, has been published. It is obtainable at H.M. Stationery Office, price 3*d*.

The Note includes information on exemptions and the arrangements for payment of development charge. It is pointed out that development charge for the *winning and working* of minerals is inclusive of the right to erect buildings, plant and machinery for that purpose; the charge for erecting buildings, etc. for *processing* minerals is, however, normally calculated separately.

War Damage Claims. The Central Land Board believe there may still be some owners of war-damaged property entitled to claim a payment under the 1947 Act, who have not yet done so. These claims

can be made on certain 'total loss' properties where the War Damage Commission assessed a value payment, and must be lodged with the Board before 1 February 1951.

The Board have published an explanatory leaflet on these claims—S.I.A. (War Damage), obtainable from the local offices of the Board and the War Damage Commission. Payments are in cash and include interest. They are separate from the £300 million on which claims had to be lodged by June 1949.

Value payments were assessed on the basis that the owner of a blitzed site could realize any extra market value obtainable for it due to its suitability for something more valuable than the replacement of the destroyed building. Sites with this extra development value had a lower value payment, sometimes nothing. The 1947 Act has now removed development values from private ownership, and owners who are affected can claim. (CLB/37. 11 December 1950.)

Development by Government Departments. Circular 100, dated 7 December 1950, contains details of the new procedure to be followed by government departments proposing to develop land. The departments will seek to ensure that their development is as far as possible in harmony with the planning of the neighbourhood by consulting the local planning authority. The Circular is obtainable at H.M. Stationery Office, price 2*d.*

Development Charge. Advance Assessment for Certain Projects. The Central Land Board have stated (Practice Notes paragraph 121) that they can not normally assess a development charge under Part VII of the Town and Country Planning Act, 1947, unless the development is likely to take place within 12 months.

There are, however, certain large projects, such as the redevelopment of a large block of urban property, the building of a large industrial works, or an industrial or housing estate, which have to be planned and carried out over a number of years.

In these cases the developer needs to know his financial commitment at an early stage, and the Board will assess the charge provided that:

(*a*) planning permission, at least in principle, has been obtained; and

(*b*) the applicant can show that any necessary preliminary work, such as demolition of existing buildings or the laying of roads or sewers, will be substantially started within four years; and

(*c*) the proposed development is in the Board's view likely to be completed in one continuous process.

The Board reserve the right to reassess the charge if the development has not been substantially started within four years, that is, unless within that period a reasonable proportion of the total estimated expenditure has been invested on preliminary works such as site preparation and improvements. (CLB/38/15 : 12 : 50.)

WAR DAMAGE COMMISSION. The War Damage Commission have appointed Mr. Geoffrey C. Wilson [*F*] to be a Deputy Commissioner. He will be concerned mainly with cases in the London area. (20 December 1950.)

REPORTS OF NEW TOWN DEVELOPMENT CORPORATIONS. Reports on the progress of nine New Town Development Corporations for the period ending 31 March 1950 have now been laid before Parliament. These reports are made annually in accordance with the provisions of the New Towns Act, 1946.

The towns dealt with in the reports are Aycliffe, Basildon, Crawley, Harlow, Hatfield, Hemel Hempstead, Peterlee, Stevenage and Welwyn Garden City.

In a foreword to the reports Mr. Hugh Dalton, Minister of Town and Country Planning, states that since they were written many of the delays and difficulties mentioned in them have now been overcome. This, he points out, should become fully evident in the near future.

The reports have been published in one volume by H.M. Stationery Office (price 5*s.* 6*d.*).

TOWN AND COUNTRY PLANNING BILL. The Town and Country Planning Bill now before Parliament is drafted so as to bring certain works for making good war damage within the definition of 'development' in the 1947 Planning Act, thus making planning permission necessary. Planning authorities, it is thought, are handicapped in redevelopment by the exemptions from the necessity for obtaining planning permission at present provided by the 1947 Act. The Bill also extends the period during which planning authorities may enforce the conditions which they have attached to permits for development. The 1947 Act provides that conditions may be enforced by notice served within four years of the time when a development was carried out. Under the Bill enforcement notices may be issued within four years after the date on which failure to comply with planning conditions was reported.

MINISTRY OF HEALTH. Acquisition of Land. *Circular* 109/50, dated 7 December 1950, states that it is not proposed to seek an extension of the period during which authorizations may be given under section 2 of the Acquisition of Land (Authorization Procedure) Act, 1946. Accordingly, this power to authorize the speedy acquisition of land will lapse on 17 April 1951.

Applications under section 2 should therefore not be made to the confirming authority unless enough time remains at the date of submission for the confirming authority, if it so decides, to give an authorization before 18 April 1951. It is suggested that local authorities would normally do well to regard 31 January 1951 as the date after which application could not usefully be made.

MINISTRY OF WORKS REGIONAL OFFICE AT TUNBRIDGE WELLS TO CLOSE. The Ministry of Works Regional Director for the South-Eastern Region, Mr. S. J. Egerton-Banks, M.I.Mech.E., retired on 31 December 1950, and the future of the Ministry's South-Eastern Regional Office has been reviewed in the light of present-day requirements. It has been decided that it is no longer necessary to maintain a separate Regional organization with a headquarters in Tunbridge Wells and the Regional Office there will be closed on 31 March next.

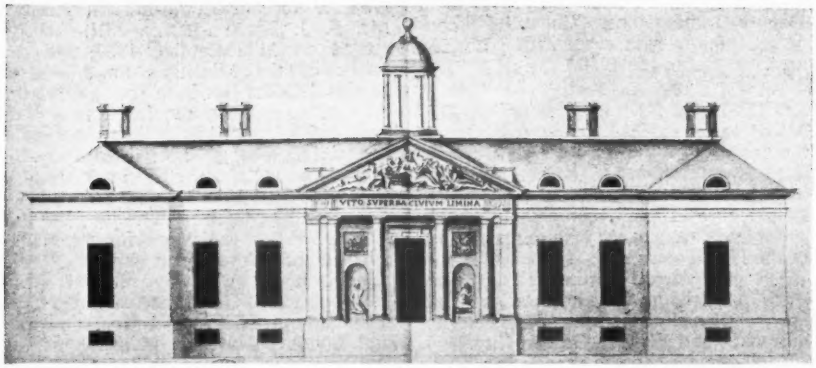
A District organization for the maintenance of Government buildings will remain, but it will be controlled from Headquarters. Questions affecting the Building and Civil Engineering Industries and Building Materials industries in the South-Eastern Region will be handled from Headquarters at Lambeth Bridge House. Applications for building licences and statistical returns from builders will be dealt with by the London Licensing Office at 17 Cornwall Terrace, Regents Park, London, N.W.1. (Telephone MUSeum 5030.)

The arrangements for consultation with the industrial and professional organizations, which are at present carried out through the South-Eastern Regional Building and Civil Engineering Joint Committee, are being reviewed in consultation with the organizations concerned. (M.O.W. 128/50. P.I. 19.12.50.)

Correspondence

A CONTEMPORARY OF C. R. MACKINTOSH

Sir,—The very interesting article about Charles Rennie Mackintosh in the November JOURNAL reminds me of another precursor of modernism. I refer to Eustace C. Frere. I do not know why he too is not a divinity of the modernists. Though, unlike Mackintosh's, his work was coloured by a touch of Greek feeling he was nevertheless ahead of his time in throwing overboard symmetry when it suited him, and most of the trappings which were the stock-in-trade of his brother architects. Whether his planning was good or bad I have here no means of telling, but I will look forward to the day when someone 'discovers' Eustace C. Frere and we shall be able to see, collected together, plans and illustrations of his work. I think it will then be seen that not only is he entitled to a niche as a forerunner of a modern approach to architecture, but that his work will demonstrate how sculpture can be happily a part of modern buildings. KENNETH GLOVER [*F*]



The rear (south-east) elevation of the 'Villa'. (Talman's monogram appears between the triglyphs under the pediment.)

An Unfulfilled Project for improving Hampton Court

By Cyril G. E. Bunt

SINCE THE BRIEF announcement, in the R.I.B.A. Library Bulletin, of the identification of these drawings, a considerable amount of interest has been manifested, not only by members of the Institute but, following a quite unsolicited notice in the public press, others have been impressed. It is felt, therefore, that the readers of the JOURNAL should be the first to be given an account of this unique set of original drawings by William Talman.

In the list of Donations published with the First Report of the Institute it is recorded that Mr. J. W. Hiort presented 'a volume of original sketches and drawings made about the year 1698 by J. Talman, Architect'. The volume had been presented to the Institute in the year 1835 and is therefore one of its earliest acquisitions. This volume, now much the worse for wear, is lettered on the back 'Drawings by J. Talman. 1698', and it actually contained a considerable number of drawings by that amateur architect, clever draughtsman and first Director of the Society of Antiquaries.

But as long ago as 1888 Mr. Wyatt Papworth, having given some attention to them, recorded (in an autograph note inserted in the book) his opinion that many, if not most, of the drawings were by William Talman, the father of John, the latter having used the volume as a scrapbook into which he had stuck some of his own and his father's drawings. Substantially this is true, but the book must have belonged originally to his father, for the drawings at present under consideration are mounted directly on to guards and form the substance of the original volume.

Most of the added drawings have since been detached. The volume as it is at present, therefore, is essentially what it was originally intended to be—a set of drawings of one complete project to extend the amenities of Hampton Court gardens. The fact that it was bound up in tooled rough calf suggests that the architect either intended to submit it thus for the Royal approval, or, at the very least, that he attached considerable importance to it.

William Talman's name and reputation have, to some extent, been submerged beneath the fame of his great contemporary, Sir Christopher Wren. Few, except those specialists who have a lively interest in the architecture of the late seventeenth century, have any knowledge of his achievements. Yet he did a great deal of good, solid—if not brilliant—work. Apart from his designs for large houses, such as Thoresby (for the Duke of Kingston), Chatsworth (for the then Earl of Devonshire) and Swallowfield (for the Earl of Clarendon), he was Controller of the Board of Works for William III and was in charge of the erection of the new part of Hampton Court Palace under Wren. The *Dictionary of Architecture* suggests that he probably died about 1700, but he was certainly alive in 1702, for at that date he is signatory with Wren of applications for payments to be made to both Grinling Gibbons and Verrio.

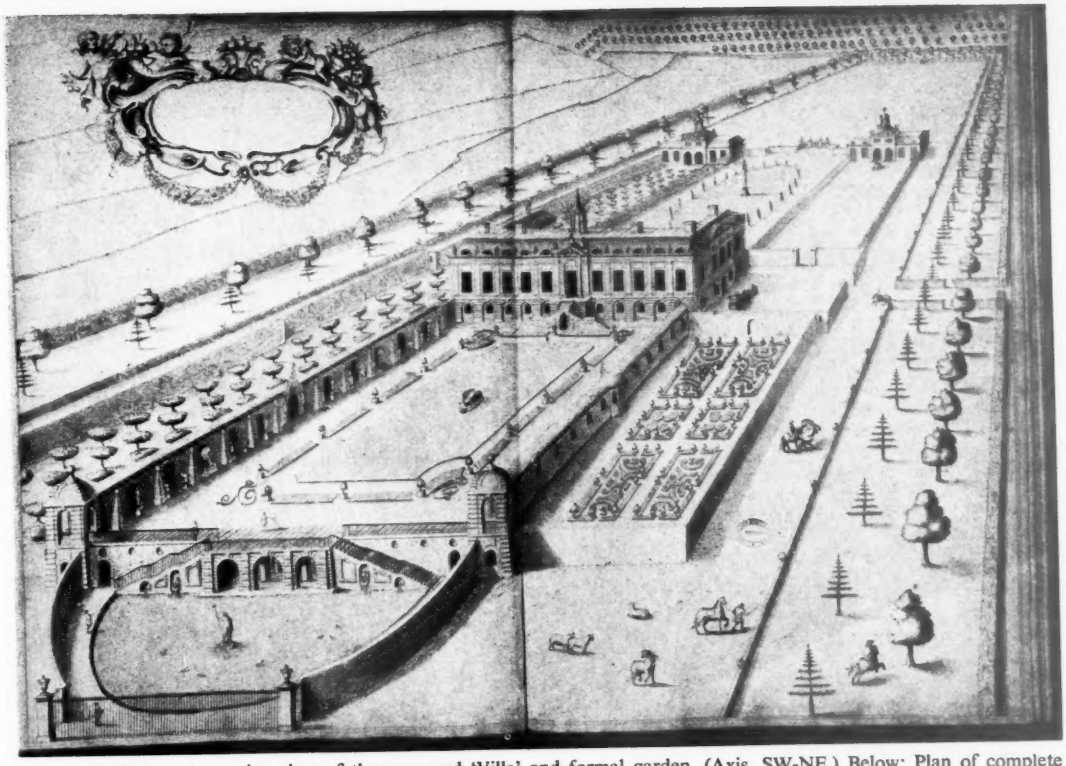
All credit for Hampton Court must presumably be given to Sir Christopher and not to Talman. But this old album, which has been in possession of the R.I.B.A. for the last 113 years, contains original plans, elevations, etc. for a remarkable project. In essence, this was to be an extension of the diagonal avenue to the right of the Long Water, to continue it across the river and, on the other side, to erect an elaborate villa of two storeys, with a raised formal garden surrounding it, the avenue to terminate in a triple row of trees set transversely to close the vista. The piece of land to be thus brought into the garden, lying between Kingston and Ditton, is shown in Rocque's map of 1762 as fields with brick kilns.

The drawings progress from the general to the particular. The first shows a map of the whole site of the Palace as originally replanned, i.e. with the ancient parts entirely cleared away. The 'Avenue to Ditton' (as it is marked on a plan in the Soane Museum) is here extended right up to the river and continued across the fields beyond. There follows a plan or map of the part proposed to be laid out on the Surrey side. Both these show the full project. Then, from a general plan of the proposed new buildings and their immediate environment, we pass to a more particularized plan, its area confined to the villa and formal gardens. Next we have a block-plan of the villa building, which it may be mentioned was to be set transversely so as to be the culminating point in the long avenue. And so we go on to a more detailed plan of the raised principal floor and pass to elevations and sections, which show that it was to have been a miniature palace complete with coach-houses beyond the formal gardens. A striking bird's-eye perspective view of the whole (subject of one of the double-sheet drawings) sums up the truly adventurous project—a truly Royal and rural pleasure house for the monarch and his court. There is only one thing unprovided for—that is a mode of access from one side of the river to the other. We may remember, however, that it was a period when the royal barge was a very normal mode of stately progress.

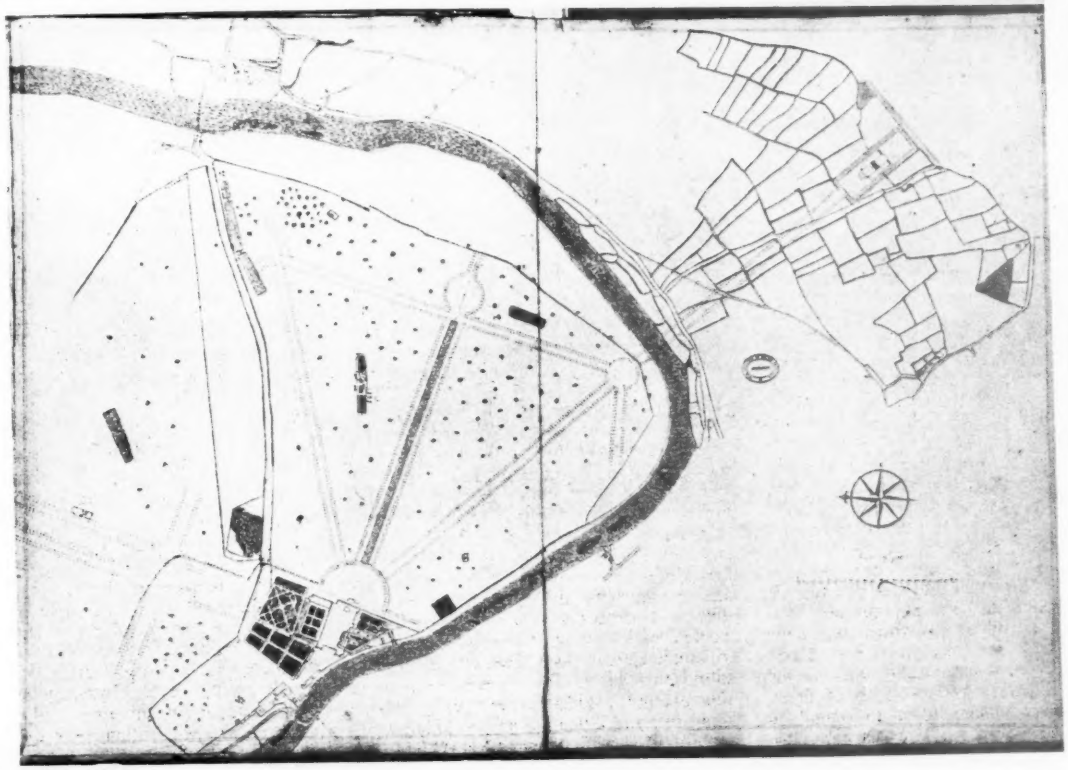
There is no doubt that the whole project was the work of William Talman, for in at least three of the more important of the elevations is incorporated the artist's monogram $\overline{WT}$, which we find as a sign manual on other of his drawings.

Equally there is no doubt that the project was never carried out, as witness Rocque's map of 60 years later. This need cause no surprise, nor need we presume it to have been due to frustration on the part of Sir Christopher Wren, despite the fact that, from temperamental or other reasons, Talman did not get on well with him. Although, for this reason (if no other) it is improbable that Wren, as an architect, would have looked with favour upon any project of Talman's it will be remembered that King William died in 1702 and Queen Anne was notoriously reluctant even to pay for the work already done. She was not much interested to add to the amenities of the Palace. Here, then, may be the reason why the scheme was shelved.

There are certain questions to which we should like answers. Is there, for example, any evidence that the idea was ever seriously considered? From the elaboration and care with which the drawings are made this would seem probable. Was it ever put before the King? Finally, is there any possibility that other projects, hitherto given unhesitatingly to Sir Christopher Wren, might have emanated from the drawing table of William Talman? Be that as it may we have here a project certainly from Talman's brain, which, though never brought to fruition, shows the quality of his powers and the care with which he could prepare a design to the last detail.



Above: Bird's-eye perspective view of the proposed 'Villa' and formal garden. (Axis, SW-NE.) Below: Plan of complete project. Hampton Court Palace and gardens shown as before Wren's additions and alterations.



A.B.S. Centenary Celebrations

On 13 December last the Centenary Ball was held at the Dorchester Hotel in London, and surely all those responsible for the arrangements must have felt amply rewarded for their labours when they saw what a success the evening was, from the moment when the President of the Society, our own President, received the guests to the time when the last still-cheerful guests went home.

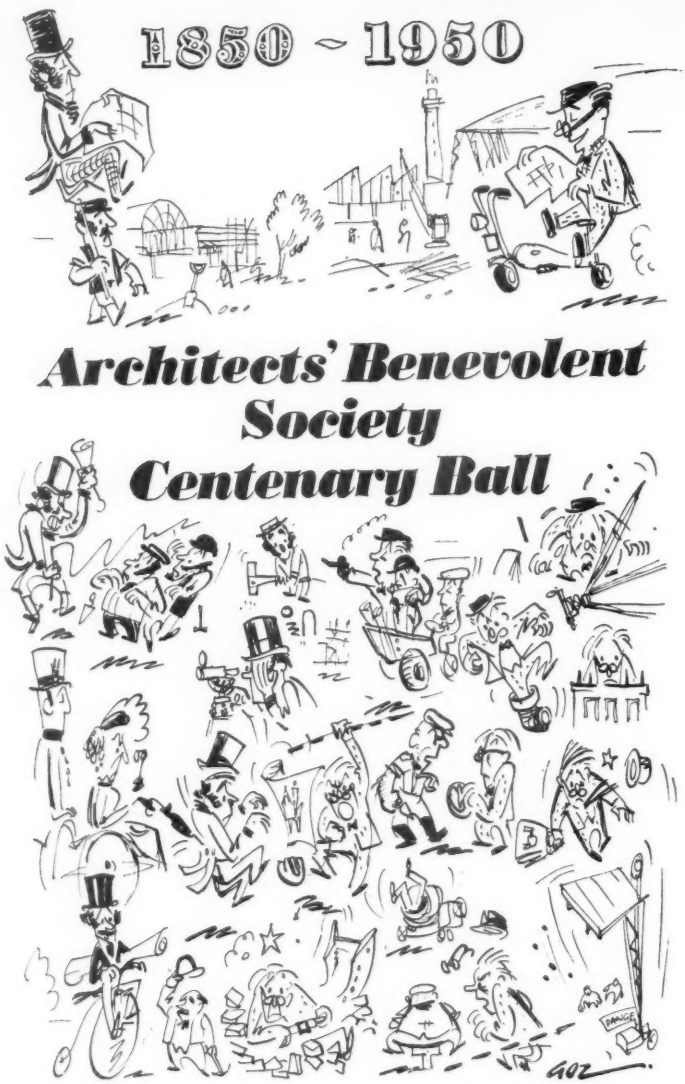
In the ante-room were two decorative stalls designed and made by Miss S. M. Gray and Messrs. H. D. Seigle-Morris and Donald Smith, students of the Regent Street Polytechnic School of Architecture, who did things with bamboo and drapery that would astonish natives of tropical regions. In one the untiring Mr. C. H. Drummond drew quick pencil sketches of sitters, who kept him busy all the evening; in the other stall charming lady volunteers sold tickets for the 'draw', and did a flourishing business. The prizes ranged from a refrigerator to a bottle of whisky.

After supper a cabaret troupe from the Architectural Association School of Architecture gave an amusing interlude, including a burlesque of ballet dancing, and duets so well timed and mimed that one almost forgot that the voices came from a gramophone record.

Music for the dancing was provided by Charles Ernesco and his broadcasting band, who late in the evening paid a compliment to the President by introducing two bagpipe players, whose skirling inspired the dancers to perform somewhat random Scottish reels with vivacity and enthusiasm, even if the correctness of their steps was a little doubtful.

The following generously provided the prizes for the draw: Hugh Montgomery, Esq.—Electrolux refrigerator; Ascot Gas Water Heaters, Ltd.—Sink water heater; Bratt Colbran Ltd.—Electric fire; Troughton and Young Ltd.—Electric light fittings; The Architectural Press Ltd.—two books; The Proprietors of the ARCHITECT AND BUILDING NEWS—two books; The Studio Ltd.—two books; The Proprietors of THE BUILDER—three subscriptions to THE BUILDER for one year; THE ARCHITECTURAL REVIEW—Drawing by Gordon Cullen; A. J. Binns Ltd.—Door furniture and a set of Jamaican native figures; The Rowley Gallery Ltd.—Mirror and wooden plates; Arthur Sanderson and Sons Ltd.—Wallpaper for one room; J. Boland, Esq. (Gyproc Products Ltd.)—three bottles of whisky. Mr. James Shand printed the draw tickets free.

Materials for the stands were provided by Messrs. F. W. Clifford Ltd.; the Anderson Construction Co. Ltd.; Messrs. King's (B.D.J.) Ltd.; Messrs. James Jennings and Son Ltd.; Messrs. John Line and Sons; and Messrs. Arthur Sanderson and Sons Ltd.



Pen Drawing on the menu card by D. Gosby, School of Architecture, Regent Street Polytechnic

The Centenary Appeal Committee of the A.B.S. are grateful to all those who worked behind the scenes to make the evening a success, especially to Mrs. Wolfe; to Mr. E. L. Bird for arranging the printing of the menu card; to Mr. D. Gosby, a third-year student at the Regent Street Polytechnic School of Architecture, for his drawing which decorated the front page, and to Mr. E. O'Shaughnessy, who made arrangements for material for the stands.

At the centre of all the work of organization was Mr. C. J. Epril, Chairman of the Ball Committee, to whom must be given the thanks and congratulations of all who were present.

It will be remembered that the centenary of the A.B.S. has been made the occasion for starting a fund whereby cottages for beneficiaries may be built, and the success of the Centenary Ball will bring this worthy object a little nearer fulfilment.

Donations and the proceeds from the Ball will amount to about £750, which includes £300 from Mr. Hugh Montgomery, a generous donation which allowed the Committee to embark on the project with less anxious minds.

Further Donations

Since the publication of the December JOURNAL the following further donations have been received:

F. J. Saunders, 5*s.*; A. W. W. Lewis, 10*s.* 6*d.*; H. Jackman, £20; H. Jackman, £3 3*s.*; H. J. Powell and E. E. James, £2 2*s.*; Ove Arup and Partners, £5; B. H. Harmsworth, 10*s.* 6*d.*; G. W. England, £1 1*s.*; R. S. Horne, 10*s.* 6*d.*; J. E. Trimble, 10*s.*; Miss Joan Dunkerley, £1; J. A. Lynch, £2 2*s.*; R. H. B. Lowe, 5*s.*; F. C. Keel, 5*s.*; E. H. Forster, 5*s.*; C. Calvert, £1 1*s.*; H. H. Dawson, £5; Daniel West, £1 1*s.*; Charles Oliver, £2 2*s.*; P. R. Middleton, 10*s.*; THE BUILDER £105; Harry W. Weedon and Partners, £10 10*s.*; Bridgwater and Shepheard, £5; A. Le Sueur, £5 5*s.*; J. P. Burrow, 10*s.* 6*d.*; Smith, Woolley and Partners, £1 1*s.*; R. J. Tucker, £1 1*s.*; T. J. Beveridge and Dallachy, £10 10*s.*; E. Hadden Parkes, £2 2*s.*; P. M. Brown and Son, £2; A. F. W. Reading, £1 1*s.*; J. F. Clarke, 5*s.*; Osborne V. Webb, 5*s.*; R. J. Hunt, 10*s.*; C. J. W. Lindley, 5*s.*; Spence and Price, £3 3*s.*; John Hodges, £1 1*s.*; T. V. Deas, £1 1*s.*; Miss E. B. Colley, £1; O. P. Milne, £3; J. A. Upton-Prowse, 10*s.* 6*d.*; E. H. Honeyburne, £1; Clifford, Tee and Gale, £10 10*s.*; Neville L. Fry, £1 1*s.*; Alan Reiach, £1 1*s.*; James McGregor, £1 1*s.*; Worshipful Company of Carpenters, £105; James Taylor, £5 5*s.*; L. A. Wilkes, £1 1*s.*; O. B. Raven, £2 2*s.*; C. H. Perkins, £1 1*s.*; J. C. Swallow, £5; A. J. Hope, £10 10*s.*; F. J. D. Daly, £2; Gaius Foster, 5*s.*; R. Collins, 5*s.*; K. Mellon, 5*s.*; C. Lowes, 5*s.*; Eric Morley, £1 1*s.*; N. Griffiths, £1 1*s.*; H. R. Davis, 10*s.* 6*d.*; Raglan Squire, £2 2*s.*; Allen Foxley, £3 3*s.*; Harold Cox, £1 1*s.*; W. Gregory Wilson, £1 1*s.*; Raymond Silcock, £1; John Cubbon, £5; C. E. Horsfall, £5 5*s.*; Wood, Goldstraw and Yorath, £10 10*s.*; C. T. Perzanowski, 5*s.*; E. C. Jennings, 5*s.*; Edinburgh Architectural Association, £21; I. Murray Leslie, £5; R. M. McNaught, £7 7*s.*; Major A. S. Ash, £10; J. F. Dimond, £1; Willink and Dod, £5 5*s.*; T. B. Jones, 5*s.*; L. L. Brown, £5; W. F. Copp, £1 1*s.*; F. W. Goddard, £1 1*s.*; William Wells, £1; R. W. B. Parsons, £5; J. A. O'Gorman, 10*s.* 6*d.*; P. F. J. Lawson, £1 1*s.*; G. B. Bray, 10*s.*; W. H. Scanlan, £10 10*s.*; A. Cumming, 10*s.*; S. W. Milburn, £10 10*s.*; C. J. Doig, £1 1*s.*; L. H. Gray, £7 7*s.*; F. G. Lees, £2 2*s.*; R. S. Tubbs, £1 1*s.*; J. W. Murray, £1 1*s.*; C. J. Burnett, £1 1*s.*; J. F. Bateman, £1 1*s.*; Coventry Society of Architects: J. Roland Sidwell (10*s.* 6*d.*), W. S. Hattrell and Partners (£10), C. F. Redgrave and Partners (£10 10*s.*), £21 0*s.* 6*d.*; P. Powell, £3 3*s.*; Howard V. Lobb, £100; J. S. Leslie, £2 2*s.*; Wills, Sons and Nicholls, £2 2*s.*; A. A. Macfarlane, £2 2*s.*; P. C. Boddy, £5 5*s.*; A. E. Wiseman and J. W. Feltham, £20; Mrs. T. M. Nattrass, £1; Mrs. B. E. Auld, £1; J. G. Simpson, £1 1*s.*; A. J. Thomas, £5; F. R. S. Yorke, E. Rosenberg and C. S. Mardall, £3; T. S. Shearer, £1 1*s.*; John Ashbourne, 10*s.* 6*d.*; G. C. Jackson, 10*s.* 6*d.*; F. P. Harrison, 10*s.*; V. C. L. Saunders, 2*s.* 6*d.*; B. R. Davis, 7*s.* 6*d.*; R. W. Thorp, £1 1*s.*; H. S. Peppiatt, £1 1*s.*; G. A. Hancock, 5*s.*; A. B. Knapp-Fisher, £3 3*s.*; Denis Baxter, £2 2*s.*; A. H. Durand, £1; E. G. Catchpole, £1 1*s.*; C. E. Worthington, £1; G. W. Hardy, 5*s.*; Oxfordshire Society of Architects, £15 15*s.*; H. C. H. Monson, £6 6*s.*; R. Sheppard and Partners, £4 4*s.*; London Electricity Board, £5 0*s.* 6*d.*; G. S. Horner, £5; Sydney Bailey, £1 1*s.*; J. G. Hood, £5. Total to 8 January, £4,773 6*s.* 8*d.*

Since the above list was compiled, the Architects' Benevolent Society has received a further 532 donation: in addition, over a hundred persons have signed a 7-year covenant for annual total subscriptions to the Society's funds of £150 5*s.* 6*d.*

Book Reviews

James Wyatt, 1746-1813, by *Reginald Turnor.* (The Architects *series:* i.) 7¼ in. 49 pp. (47) pls. text illus. Art and Technics. 1950. 8*s.* 6*d.*

This is the first of a series of 'Architectural Biographies' which are appearing under the general editorship of Mr. Hugh Casson. Books on Henry Holland and Thomas Archer are companion volumes, and C. F. A. Voysey and Le Corbusier are on the list of architects to be dealt with later. Meanwhile, we have Mr. Turnor's pleasantly written essay on Wyatt, pleasantly illustrated and produced, though, in parts, insufficiently studied. Wyatt is not an easy architect to interpret, and a necessary preliminary is to be sure what buildings are really by him and why they could be by nobody else. The texts of these 'Biographies' are short. but one would like to see them dead accurate and concisely indicative of the main aspects and sources of each man's style as well as the facts about his life. Most architects' lives are (mercifully, perhaps) not nearly so interesting as their works.

J. S.

Henry Holland, 1745-1806, by *Dorothy Stroud.* (The Architects *series,* ii.) 7¼ in. 56 pp. + (48) pls. text illus. Art and Technics. 1950. 8*s.* 6*d.*

This essay is a very welcome addition to the studies now being published on the lives and works of English architects; the series might well and usefully be continued to include the giants of the 19th century. Miss Stroud has contrived, in 50 pages of text and approximately sixty illustrations, to detach Henry Holland from the period in which he lived and practised. This is no small achievement, for it had the effect of showing how far he exceeded the stature of many of his famous contemporaries. Yet it leaves the impression that so much more might have been included had more space been allowed. For an ordinary mortal to have done so much within the short space of thirty-six years of active life would have gained him posthumous fame. Holland, however, was most fortunate in his choice of period, and his patrons were equally fortunate in securing the co-operation of such an artist. As adviser to Prince Florizel at Carlton House and Brighton; as the theatre expert on whom Richard Brinsley Sheridan relied; as the intimate friend and consultant to the leaders of the Whig aristocracy, Holland's position was enviable. What is remarkable is the fact that his private practice included a number of lesser buildings such as small houses, offices, cottages, lodges and farm buildings. The small town houses in Sloane Street, Hans Place and Cadogan Place, afford evidence of the skill of a master. It was, indeed, his versatility as an architect, a deviser of decoration and furniture, as well as his aptitude for timber construction, which assured him renown.

While Holland was still in his 'thirties' he was commissioned to design and build Brooks's Club, the ceiling of the great Subscription Room being inspired by Robert Mylne's segmental ceiling at Almacks. At this time Sir William Chambers was engaged on the plans for rebuilding Somerset House. Wyatt had recently completed the Pantheon in the Oxford Road, and the brothers Adam, fresh from the completion of the Adelphi buildings, were engaged on their project for Portland Place.

From now on Holland's future was assured, for he had stepped into a position which fortune had made for him. His greatest achievement in the years that followed was the creation of an individual style which by its familiarity appealed to a wide circle. It was a simple unaffected style, quite distinct from the arabesque manner of the brothers Adam, and dissimilar to the Palladian examples upon which it was based. By reason of its simplicity nothing called for greater precision. To some extent Robert Mylne showed similar regard for austere classical detail, but Mylne never rose to heights of decorative elegance; for example, Holland referred to contemporary French decoration, and Robert Mylne had recourse to books on ornament by Richardson.

In the late 18th century when architecture was acclaimed as the first of the plastic arts, it gained scope and strength at the hands of men of culture. Then architects gained inspiration from popular sources, but their individual genius evolved new dispositions of themes which were universal. It should be remembered that this was before the days of schools when pupilage was the only method of acquiring professional knowledge. To some enthusiasts, even in these limited days, the principles followed by past-masters offer fruitful ideas. To the great majority of mass trained students they are incomprehensible. It is doubtful if they will ever be understood again.

Miss Stroud, very rightly, does not enter into such arguments; on the contrary she has taken infinite trouble to investigate the sources of Henry Holland's work and to deal with all available data. Within the compass of a very attractive, if slight essay, much has been accomplished. But I am sure the talented author will agree that such superb mansions as Woburn, Althorp and Southill, deserve a monograph on Holland's contribution to each. His individual style, so far as elevations went, was so related to everyday use that in his own time and until recent years it passed almost unnoticed. As a style it reveals slight variations here and there because it was alive and vivacious in spirit. Thus, while the architect kept the work of his contemporaries, English and French, in view, he never indulged in imitation but added a touch of his own personality to all he borrowed.

The categories he esteemed were those of quality, refinement, and proportion. Yet he condescended to details which were part of the vernacular construction of his day. This applies particularly to items of joinery and metalwork; the locks and the ironmongery of his finest buildings were

always plain and good. His designing was so logical that it touched the fancy of his admirers and clients, and in this way he secured popularity.

Both the author and the publishers are to be congratulated on the production of a book that is architectural, and this is saying a great deal in an age which follows fugitive shadows.

A. E. RICHARDSON [F]

På Kulturvernets Veier [in search of the preservation of culture]; erindringer [recollections], by *Harry Fett*. 9 in. by 7 in. (xi)+ 264 pp. incl. pls. text illus. Oslo: Gyldendal. 1949.

This book is a collection of essays, written at various times, commemorating the centenary in 1944 of the Norwegian Society for the Preservation of Historic Monuments. It is divided into two sections, Nordic (i.e. Scandinavian) problems, and early recollections.

The first essay takes us back to 1844, the year of the death of King Carl Johan. It marked the end of an epoch, a great period of clearing-up and renewal in Europe, a period often called 'reactionary', but one during which the steam-engine developed and the way was prepared for electricity, vitamins, hormones, light metals, and other vital discoveries. In Norway it was also the time of the poet Wergeland, the archæologist, I. C. Dahl, of Asbjørnsen and Moe's collected Norwegian fairy tales, and of Kjerulf and Ole Bull in music. In all Europe small nations were awakening to national consciousness.

At this time also was founded the Norwegian Association for the Preservation of Historic Monuments, largely through the activities of Frich and Tidemand, both painters, Prof. R. Keyser, and Nebelong, the architect who restored the church at Hitterdal in 1850.

The author of these essays, Harry Fett, an Honorary Corresponding Member of the Institute, devoted himself for half a century to the cause of preserving and displaying Norwegian folk art and historical monuments. In his last essay he records the long controversy in Norway at the beginning of this century as to whether the State Antiquarian (Riksantikvar) should be chosen from the museums or from the architectural profession. Harry Fett was not an architect, but Norwegian architects publicly expressed their approval of his appointment; this was in 1913. They had confidence that he would 'co-operate with all interested persons and dispel the existing mistrust between antiquarians and architects.'

Any visitor to present-day Oslo will confirm that Fett was the right man for this work. The Folk Museum on the Island of Bygdøy, Oslo, is an open-air and indoor museum combined, where historical handicrafts, costumes, and buildings (including a wooden church transported there from Hallingdal!) are shown in one historical ensemble, where the accurate mind of the scholar has been put to work to record and to popularize the historical crafts and building styles of Norway.

Of most interest to architects is probably the chapter on 'Types of museums' which records the controversies leading to the development of the open-air museums in Oslo, Lillehammer, and more recently in Bergen. A. T.

Space, Time and Architecture, by *Sigfried Giedion*. Reprint (8th imp.), enlarged. 9¾ in. xviii + 665 pp. text illus. Harvard U.P. O.U.P. (Geoffrey Cumberlege), 1949. £2 10*s*.

'Those of you who have read your Giedion —and who in this room is bold enough to admit he has not?—will remember how convincingly he proves that advances in industrial technique inevitably brought with them advances in structural techniques, so that the history of the exhibition becomes itself a history of structural ingenuity.' So said Hugh Casson in an address to the R.I.B.A. on the 1951 Festival of Britain in March of last year. But this was not the only discovery first put into words in *Space, Time and Architecture*. On re-reading this astonishing book, now in a new and enlarged 8th impression, one is amazed to find how much that is now generally accepted first saw the light in its pages—only nine years ago. Even such an authority as Pevsner in the 2nd edition of *Pioneers of the Modern Movement* (now called *Pioneers of Modern Design*) says: 'Since this book was first published in 1936 our knowledge of iron in architecture has been greatly increased by the relevant chapters of Giedion's book. . . . They amplify considerably what Dr. Giedion had compiled for his *Bauen in Frankreich* (Leipzig, 1928). . . . The following account repeats much that is contained in these publications.' And Pevsner's fifth chapter is almost completely re-written. Bruno Zevi, in his new book, *Towards an Organic Architecture*, quotes extensively from *Space, Time and Architecture*, and gives, as the best definition of the title of his own work, Giedion's remark: 'Organic in the sense of Sullivan and Wright is a protest against the split personality, against a split culture. It is identical with "the ten-fingered grasp of reality" or with that development in which thinking and feeling approach coincidence.'

The importance of exhibition architecture, the importance of the work of the 19th-century engineers, the importance of the dichotomy of thought and feeling since the industrial revolution, the coining and pin-pointing of 'constituent facts' as opposed to 'transient facts'; these and many more concepts first made their entry into architectural thought and parlance in this book. But the main theme of the work is described in the foreword: 'My interest has been particularly concentrated on the growth of the new tradition in architecture, for the purpose of showing its interrelations with other human activities and the similarity of methods that are in use today in architecture, construction, painting, city planning and science.'

This following of a theme vertically through history—instead of producing a chronological catalogue—marks Giedion (a pupil of Wölfflin) as one who follows 'the methods of an art historian who no longer thinks in terms of style. The masterly elimination of "styles" and "forms" was one of the miracles of the 19th century. The contemporary art historian is not so much concerned with horizontal sections through history as with vertical sections—the elucidation of types', and among the types (or constituent facts) particularly studied by Giedion (as John Summerson noted in his review of the 1st edition of the book) are the undulating wall; the juxtaposition of nature and dwellings; the open ground plan; the 'vaulting problem'.

The 8th impression, in addition to some new illustrations, contains further material on Eiffel and Maillart and a complete new chapter on Alvar Aalto.

One can speculate on the reasons for these particular additions. The Eiffel Tower is an outstanding example of Hugh Casson's opening comment—an advance in industrial technique which had brought about a spectacular advance in structural technique which was in turn to have far-reaching architectural and emotional consequences. The new section develops this aspect.

In the new pages on Maillart the work of the last ten years of his life is described, and interest perhaps centres on his Cement Hall of 1939 'hovering over the earth like a silken balloon about to rise'. Shell concrete may, Giedion believes, become the 'vault of our period' in the civic buildings that are yet to be erected.

There need be no speculation on the reasons for the inclusion of the new chapter on Alvar Aalto. He, above all others, exemplifies Giedion's main interest, the re-establishment of 'a union between life and architecture' and his work shows examples of all the main 'constituent facts': the undulating wall (New York Fair, etc.), the juxtaposition of nature and dwellings (Sunila, etc.), the open ground plan (Mairea, etc.), the vaulting problem (Viipuri).

Space, Time and Architecture is concerned with the growth of contemporary architecture, but—at the same time—Giedion is anxious to show that 'in spite of the apparent chaos of our period, there does exist a true if hidden unity. But this secret synthesis has not yet become a conscious and active reality' because we have not yet achieved a human adjustment to the sudden impact of mechanization, which disrupted the organic rhythm of life. This thesis is carried several stages further in Giedion's subsequent book, *Mechanization Takes Command* (Oxford University Press, 1948), where he plunges into what he calls 'anonymous history'—a study of the hidden influence upon man of changes in humble objects. JAQUELINE TYRWHITT

The Gothic World, 1100-1600, A Survey of Architecture and Art, by *John [H.] Harvey*. (British art and building series.) 10¼ in. xii + 160 pp. + pls. + endpaper maps. text illus. and maps. Batsford. 1950. £1 10*s*.

Mr. Harvey is extending his field from English to European Gothic. In his recent *English Cathedrals* he had already some

worth-while paragraphs on the differences of character between English and French cathedrals. Now he takes in the whole Gothic territory from Norway to the Spanish and Portuguese dominions and the Holy Land. He does it with remarkable knowledge. His bibliography is impressive, and his notes prove that he has made full use of the books and papers listed. The best chapters are those dealing with building procedure, finance, drawings, the social status of master masons and carpenters and such-like questions. Here Mr. Harvey's summing up is easily the most interesting available and should be read by every architectural student.

In the actual history of architecture he is more controversial. But one feels that wherever he provokes you, he does so for a purpose. Even so, can one really say that before 1300 'flourishing indigenous schools of artists' in the Gothic style existed only in France and England (p. 55)? How about the Bamberg and Naumburg sculpture? Can one derive the spread of churches with square east ends from England? Is the square east end not internationally speaking a Cistercian rather than an English characteristic? What does 'pure Gothic' mean, if it is said that its first appearance in Europe is at Wells (p. 74) and its first appearance in France at Bourges (p. 63)? And can the ogee arch really be derived from odd Persian embassies to England? After all, it did exist in France from the middle of the 13th century, even if extremely rarely (south porch, St. Urbain, Troyes; shrine of St. Gertrude, Nivelles, illustrated by Mr. Harvey, fig. 25).

This last question is closely connected with one more fundamental. According to Mr. Harvey the creation of the Gothic style was due to the direct contact between the Normans and the East (p. 57). This statement seems to me to overestimate both the importance of the Orient and the Norman contribution. The conceptions of Gothic architecture in the France of the 12th and 13th centuries are so utterly opposed to those of Islam that there can not have been more than accidental confirmation, when the French saw certain motifs and constructional devices in the East; and as for the Normans, while it is true that the Ile de France took over certain elements, the creative imagination, the religious fervour and the intellectual clarity of the development from St. Denis to Beauvais seem to me wholly French and not Norman, let alone English. The spirit of Jumièges and Durham is utterly different from that of the east end of St. Denis and the nave of Noyon.

A reviewer's irrepressible desire to argue with an author, even in the shortest of reviews, is always a compliment to the author. Mr. Harvey might well have been satisfied with a mere compilation. Instead of that he has chosen to venture forward with his personal thought, his personal convictions and consequently also his personal idiosyncrasies. NIKOLAUS PEVSNER

An Introduction to Railway Architecture, by *Christian Barman.* (Introductions to architecture *series.*) 8¼ in. by 6½ in. 40 + (1) pp. + (63) pls. Art & Technics. 1950. 15*s.*

Christian Barman has supplied a missing chapter in the history of English architecture, and his essay on the age of English railway building is an important contribution to the study of the transitional period from an agricultural and aristocratic society that was served by classic architecture, to an industrial and plutocratic society that was served by Gothic, classic, and Continental odds and ends of all sorts. In 104 pages, of which 62 are occupied by admirably chosen half-tone illustrations, the author has examined very thoroughly the architectural character of railway stations in cities and in the countryside, and he brings the story right up to date. He confines his illustrations wholly to stations, and does not include all the incidental architecture of railways—signal boxes, round houses for locomotives, tunnel entrances, and, most spectacular of all, bridges. The plates are grouped under three headings: (1) The Functional Projection. (2) The Social Projection. (3) The Hieratic Projection.

The author points out that 'perhaps the best way to study railway building is, after all, to see it as part of the architectural family to which our mills and warehouses, our market halls, our waterworks buildings and all the other industrial architecture of the period also belongs. It is not too much to ask that this architecture should now be treated seriously by historians and topographers who have too long spoken of it either not at all or with contempt.' Mr. Barman's book is the first compact and serious study of a subject that repays attention. JOHN GLOAG [*Hon. A*]

English Interior Decoration 1500 to 1830. A study, *&c.*, by *Margaret Jourdain.* 11¼ in. by 8¾ in. xii + 84 pp. + pls. Batsford. 1950. £3 3*s.*

The rooms of the fashionable English home before the first World War were furnished in the traditional styles of William III, Anne, and the Georges. Because of this interest in period decoration and furniture, Francis Lenygon, of Messrs. Lenygon and Morant, the well-known firm of interior decorators, wrote in 1914 two books on the subject, which afterwards formed part of a series entitled *The Library of decorative arts.* The interior decoration described and illustrated was of the costly kind favoured by the wealthy English upper classes of the 17th and 18th centuries. The simple and inexpensive interior, which was found in the home of the ordinary citizen and country gentleman, was outside the scope of these books. In 1922 *Decoration in furniture of the late 18th century* was added to the series, and in 1924 a fourth volume was issued, *Furniture of the English renaissance*, both written by Miss Jourdain.

English interior decoration 1500 to 1830, by Miss Jourdain, is based on *The Library of decorative arts.* Miss Jourdain has followed the plan adopted by Francis Lenygon: such subjects as plaster, wainscot and woodcarving are described in each period from the early Renaissance to the Regency. The text has been condensed and many of the original illustrations omitted. The new illustrations, some of which have been specially taken, are excellent. To widen the interest of the book, a number of photographs of Colonial-American interiors have been included. These interiors lack the elegance and stately proportions of the decoration so evident in the English nobleman's mansion, but bear great similarity to English provincial work.

Miss Jourdain has added a section on Regency decoration, a subject on which she is a reliable authority. It seems a pity that she should not have devoted her extensive knowledge to writing a new work on the history of interior decoration. For it is doubtful whether much value can be attached to the revival of these past publications, the original use of which was to provide exemplars of interior decoration for designing period rooms, the fashion for which has now passed.

R. W. SYMONDS [*F*]

Warwick. Its preservation and redevelopment. A plan . . . for the Borough Council by *Patrick Abercrombie* and *Richard Nickson.* 9½ in. by 7½ in. 152 pp. incl. pls. + folding pls. + endpapers text illus. Architl. Press. 1949. 12*s.* 6*d.*

Warwick is an agreeable old English market town dominated by a celebrated and magnificent castle and the commanding tower of St. Mary's church. Its proximity to tourist magnets like Stratford and Kenilworth, to the sprawling web of Midland industrialism and to the genteel Regency Spa, Leamington, has occasioned serious traffic problems, the main difficulty being to divert and speed the flow away from the tortuous town centre.

This book presents the report and plan which Sir Patrick Abercrombie and his partner were commissioned to prepare for Warwick Borough Council in 1947. As such, it is of obvious professional significance to the town planner, but all who are interested in restoring some measure of dignity and peace to our historic towns can benefit from reading it.

The plan is produced by the Architectural Press with characteristic distinction and with various visual ingenuities that make the reader's task easy and pleasant.

Spons' Architects' and Builders' Pocket Price Book. 76th ed. 1950-1951. Davis, Belfield and Everest, eds. Spon. 1950. 15*s.*

The latest edition of this compact work of 500 pages has been brought up to date as far as possible. All prices and other information have been carefully revised and the usefulness of the book needs no emphasis.

Hospital Improvements. How to improve the daily life of the patient in the ward, by *Olive Matthews.* 8¼ in. 32 pp. privately printed (22 Harrington Gardens, S.W.7.) [1950.] 1*s.* 6*d.*

The authoress has recorded in this little booklet many points which could be given more careful consideration by architects, hospital staff, and administrators. She reveals an intimate knowledge of many of

the problems which hospital architects often overlook in complying with staff suggestions for the design of a modern ward—the large window areas, the noisy lift, and so on.

Her material is presented in a light manner, and the reader may at first treat merely with amusement what he will later study with care. Pen-and-ink sketches illustrate the practical points.

The swing of the pendulum from the dark and stuffy ward to the excessively bright and draughty, has brought problems such as glare, which are all reviewed. The tendency to plan beds parallel to the walls is favoured, as are greater attention to the preparation and serving of meals, and to privacy for the patient in a general ward. Call systems and noise are treated in a practical manner, and the suggestions for a noise enquiry are worthy of investigation.

Colour schemes and the artistic use of pictures receive comment, not to mention ward furniture and numerous small details which, given due consideration, would be in the patient's interest.

Miss Matthews appeals to readers, who agree with any of her suggestions, to do their best to get them carried out. There are several upon which only the architect can act. DONALD A. GOLDFINCH [*F*]

Architects', Builders' and Civil Engineers' Reference Book, by *Evelyn Drury and others*, eds. 3rd ed. 10¾ in. x + 868 + secl. pp., incl. advts. text illus. Geo. Newnes. 1950. £3 3*s*.

The third and latest edition of this firmly established reference book has been largely rearranged, and is now divided into twenty-two sections offering information on most subjects of interest to those who design, construct and equip buildings. The many technical articles are in general up-to-date and authoritative, and a number of new features have been included, among them a Progress and Development section compiled from recent data supplied by manufacturers. The book is well indexed, solidly bound, generously illustrated and pleasantly printed on good quality paper.

The Architects' and Builders' Compendium. 64th year. 1950. Compendium Pubg. Co. [1950.] £2 2*s*.

The new edition of this familiar reference book follows the lines of the 1949 edition, when its form was considerably altered and extended. Part I summarizes building regulations and controls, and it has been necessary to include an addendum slip listing certain exemptions from planning control and development charges announced by the Minister of Town and Country Planning after the page-proofs had been passed. Part II contains a great deal of technical information, and the Compendium also provides its usual features, e.g., registers of architects, builders, quantity surveyors, etc., as well as indexes to materials, services and firms represented on the advertisement pages. There is also a register of branded goods and trade names.

English Panorama, by *Thomas Sharp*. 2nd ed. 8¾ in. 155 pp. incl. pls., text, illus. Architectural Press. 1950. 12*s*. 6*d*.

Fifteen years have passed since this able study was first published. It proved a stepping stone to fame for the author as an authority on town and country planning and an advocate of neighbourhood units, but it has been long out of print. A welcome new edition now appears, partly revised and largely re-illustrated. No one who has read *English Panorama* is ever likely to doubt that some measure of control over our environment is necessary.

BOOKS RECEIVED

A SHORT HISTORY OF JEWISH ART. Helen Rosenau. James Clarke. 1948. 15*s*.

TECHNICAL METALCRAFT FOR SCHOOLS. A Course of Practical Instruction intended to develop skill in craftsmanship through the medium of present-day methods of Metal Working. J. R. Ferguson. B. T. Batsford. 1948. 7*s*. 6*d*.

A MEASURING DIAGRAM FOR DAYLIGHT ILLUMINATION for the Measurement, Predetermination and Representation of Natural Lighting. Percy J. Waldram. B. T. Batsford. 1950. 5*s*.

WARNE'S METRIC CONVERSION TABLES. Designed by Otto Klein. Computed by Scientific Computing Service Limited. Frederick Warne. 1950. 15*s*.

THE COMPUTATION OF HEAT REQUIREMENTS FOR BUILDINGS. The Institution of Heating and Ventilating Engineers. Revised edition. 1950. 3*s*.

ASPHALTE IN MODERN BUILDING CONSTRUCTION. G. J. Hancock. George Newnes. 1950. 30*s*.

EDUCATIONAL CRAFTWORK IN WOOD. A Manual for Teachers and Students. P. Yabsley. B. T. Batsford. 1949. 10*s*. 6*d*.

THE LIGHT METALS INDUSTRY. A Study of its Technological and Economic Development. Winifred Lewis. Temple Press Limited. 1949. 21*s*.

REPLANNING OUR TOWNS AND COUNTRYSIDE. Andrew Benko and T. Rex V. Lloyd. Workers' Educational Association of South Australia. 1949. 3*s*. 6*d*.

BUILDING MATHEMATICS for Junior Technical Schools of Building. Vols. 1 & 2. C. A. R. Eslick and W. Hatton. The English Universities Press. 1949. Each 6*s*. 6*d*.

ESTIMATING ANALYSIS FOR BUILDERS. G. Chrystal Smith. The Illustrated Carpenter and Builder. 1949. 2*s*. 6*d*.

A RAPID COURSE IN COSTING. J. H. Burton. Barkeley Book Company. 1949. 3*s*.

LONDON: HISTORIC BUILDINGS. A Series of Illustrations.

LONDON: WORK AND PLAY. A Series of Illustrations. Harry Batsford. B. T. Batsford. 1950. Each 7*s*. 6*d*.

THE BUILDING SOCIETY SURVEYOR. Cecil M. Hodgman. Franey and Co. 1950. 9*s*. 6*d*.

TABLES AND DIAGRAMS FOR USE IN DESIGNING SEWERS AND WATER MAINS. Crimp and Bruges. Second edition revised by W. E. Bruges. The Sanitary Publishing Co. 1949. 2 gns.

Review of Films—2

The country of origin and date of release are given first. The film is in monochrome unless otherwise stated. The sizes (35 *mm. and* 16 *mm.*) *are given. Sound films are marked 'sd', and silent 'st'. The running time is given in minutes.*

(*F*) *indicates free distribution.*

(*H*) *indicates that a hiring fee is payable.*

Mediaeval Castle

Britain 1950 (*H*). Teaching notes available.

Summary. The history of the mediaeval castle in England and Wales: brief introduction contrasts the former importance of the castle with its present ruined state; Norman castles: the Bayeux Tapestry and diagrams used to show how they were built; later developments in the design of the castle, typical living conditions inside a keep and methods of attack and defence; the greatly increased strength of the thirteenth century castles and defensive counter measures to repel attack; brief reference to the decline of the castle in the fourteenth and fifteenth centuries due to more settled conditions. Recapitulation of the main stages in the evolution of the mediaeval castle.

Appraisal. An admirably made film, which, while eminently suitable for secondary school use, would also be of interest to many other types of audience. The photography is of a high quality and excellent use is made of models and diagrams: animation of the Bayeux Tapestry is a particularly happy touch: content and presentation are well balanced although the omission of any reference to the drawbridge seems curious. The commentary is clear and not overloaded with irrelevant detail; interest is maintained throughout; the brief summary at the end is of the right weight and length.

16 sd. 18 minutes. G.B. Film Library, Aintree Road, Perivale, Greenford, Middx.

The Riley House

Britain 1945 (*F*)

Summary. The method of erection of the Riley permanent prefabricated house—details of construction, concrete foundations, steel framework, heating unit and chimney stack, roof sheeting, exterior timber-framed wall panels, breeze block cavity party walls, sheet aluminium cladding for first floor walls and brick or concrete slab for ground floor walls.

Appraisal. A good record film of the site processes necessary to erect this type of house. Details of the standard of performance of this building would have added to the historical value. More information about the materials—possibly in the form of captions—and a clearer presentation of the claddings would have been welcome. The photography was satisfactory for a purely record film.

16 sd. 25 minutes. Film Library, Ministry of Works, Lambeth Bridge House, London, S.E.1.

Building Homes
Britain 1950 (*F*). Colour.

Summary. A prologue contrasts the early beginnings of the firm of John Laing and Son, Ltd., with the large scale organization as it exists today.

The Easiform type of permanent house as developed after the 1914-1918 war; layout of an estate of Easiform houses and preparation for the services; details of methods of construction; properties of this type of house and views of completed houses. On a map of England are shown those Local Authorities for whom Easiform houses have been built.

Appraisal. A straight-forward Sales film, but one which conveys an accurate and clear picture of the structural methods used in this type of house. The colour system and camera work are good and the commentary is interesting, though tends to be repetitive and at times somewhat pretentious. The prologue is too long and the sales talk in the epilogue is rather too obvious. The comparison of the Easiform house with Carlton House Terrace is misconceived.

16 sd. 40 minutes. John Laing and Son Ltd., London, N.W.7.

Notes and Notices

NOTICES

Fifth General Meeting, Tuesday 6 February 1951 at 6 p.m.
The Fifth General Meeting of the Session 1950-51 will be held on Tuesday 6 February 1951 at 6 p.m. for the following purposes:

To read the Minutes of the Fourth General Meeting held on 9 January 1951.

The President, Mr. A. Graham Henderson, A.R.S.A., to deliver an address to architectural students and present the Medals and Prizes 1951.

Mr. R. E. Enthoven, A.A.Dipl. [*F*], to read a criticism of the designs and drawings submitted for the Prizes and Studentships 1951. (Light refreshments will be provided before the meeting.)

Sixth General Meeting, Tuesday 20 February 1951 at 6 p.m.
The Sixth General Meeting of the Session 1950-51 will be held on Tuesday 20 February 1951 at 6 p.m. for the following purposes:

To read the Minutes of the Fifth General Meeting held on 6 February 1951: formally to admit new members attending for the first time since their election.

Mr. Wallace K. Harrison, Honorary Corresponding Member, to read a paper on *The United Nations Building in New York*. (Light refreshments will be provided before the Meeting.)

Session 1950-1951. Minutes III
At the Third General Meeting of the Session 1950-1951, held on Tuesday 12 December 1950 at 6 p.m.

Mr. A. Graham Henderson, A.R.S.A., President, in the Chair.

The meeting was attended by about 465 members and guests.

The Minutes of the Second General Meeting held on Tuesday 28 November 1950 having been published in the JOURNAL, were taken as read, confirmed and signed as correct.

The following members attending for the first time since their election were formally admitted by the President:

AS FELLOW:
P. Russell Walker.

AS ASSOCIATES:
Walter Gherardin, Miss M. J. A. Goodwin, J. A. M. Green, W. P. James, E. V. Leece, C. M. Measday, A. R. Murray, C. T. Perzanowski, Mrs. H. Z. Prauss, G. P. Robertson, Miss A. E. Shand.

AS LICENTIATES:
L. S. Bailey, F. E. Hemming, A. G. Mead.

Mr. John Summerson, B.A. (Arch) Lond., F.S.A. [*A*], Curator of Sir John Soane's Museum, having read a Paper on *Soane: The Case-History of a Personal Style*, a discussion ensued and on the motion of The Right Hon. Lord Macmillan, G.C.V.O., LL.D. [*Hon. F*], seconded by Dr. Nikolaus Pevsner, a vote of thanks was passed to Mr. Summerson by acclamation and was briefly responded to.

The proceedings closed at 7.58 p.m.

British Architects' Conference, Belfast. Hotel accommodation available for the nights of 30 May to 2 June 1951

	ROOMS			TARIFF		Minutes from Conference Hqrs.
	With double beds	With twin beds	With single beds	Bed and breakfast per person	Full daily per person	
BELFAST						
Kensington, Great Victoria Street	—	10	10	12/6	*	3†
Grand Central, Royal Avenue ..	15	15	5	From 21/6	*	5†
Belgravia, Lisburn Road ..	12	30	18	15/–	*	20†
Eglinton and Winton, High Street		12		14/–	*	10†
Union, Donegall Square South..		5	1	14/6	*	5†
Queen's, Victoria Street ..		15		14/–	25/–	10†
BANGOR						
Pickie Hotel, Mount Royal ..		15	20	15/6*	25/–	30 by bus

* Approximate charges for other meals :—

	Lunch	*High Tea*	*Dinner*
Kensington	From 3/–	From 3/–	From 6/6
Grand Central	From 5/6		From 7/6
Belgravia	4/6		6/6
Eglinton and Winton	4/–	From 4/–	From 5/–
Union	3/6	4/–	7/6
Pickie	5/6		6/–

† These times are estimated as walking distances.

British Architects' Conference, Belfast, 30 May-2 June 1951
The next Annual Conference of the R.I.B.A. and its Allied and Associated Societies will be held in Belfast from 30 May to 2 June 1951 inclusive at the kind invitation of the Royal Society of Ulster Architects, who will be celebrating their golden jubilee. Particulars of the programme will be issued in due course, and the application form for membership of the Conference will be sent to members with the March JOURNAL. It is expected that there will be a large attendance of members from all parts of the country, and they are advised to arrange their hotel accommodation at the earliest possible moment.

The Conference Executive Committee have supplied a list of hotels, which is published below. Members are reminded that visitors to Northern Ireland must possess a valid passport or travel identity card. Particulars and the necessary application forms are obtainable from the Passport Office, Dartmouth Street, London, S.W.1, or from the Branch Passport Offices in Liverpool and Glasgow, or from any Ministry of Labour Employment Exchange.

Exhibition of Prize Drawings, 10 January to 6 February 1951
The exhibition of designs and drawings submitted for the Prizes and Studentships 1951 will remain open until Tuesday 6 February 1951 between the hours of 10 a.m. and 7 p.m. (Saturdays 10 a.m. and 5 p.m.).

Annual Subscriptions and Contributions
Members' subscriptions and Students' contributions for 1951 became due on 1 January. The amounts are as follows:

	£	*s.*	*d.*
Fellows	7	7	0
Associates	4	4	0
Licentiates	4	4	0
Students	1	11	6

For members resident in the trans-oceanic dominions who are members of Allied Societies in those dominions, and for members resident overseas in areas where no Allied Society is available, the amounts are as follows:

	£	*s.*	*d.*
Fellows	4	4	0
Associates	3	3	0
Licentiates	3	3	0

Architectural Competitions—Assessors' Awards
All architects who take part in architectural competitions are reminded by the Council of the R.I.B.A. that participation in a competition is a definite acceptance of the principle that the award of the assessor is final and binding upon themselves as well as upon the promoters, and that any competitor who feels that he has real ground for dissatisfaction with an assessor's award should communicate with the Secretary of the R.I.B.A.

Further, all architects, whether competitors or otherwise, are reminded that discussion or correspondence in the public or professional Press which tends to criticism or disparagement of an assessor or award can not alter the final and binding effect of the award, but may prejudice architects and the whole competition system in the opinion of the public, and is, therefore, highly undesirable.

Associates and the Fellowship
Associates who are eligible and desirous of transferring to the Fellowship are reminded that if they wish to take advantage of the next available election they should send the necessary nomination forms to the Secretary, R.I.B.A., as soon as possible.

Composition of Annual Subscriptions for Life Membership
Fellows, Associates and Licentiates of the Royal Institute may become Life Members by

compounding their respective annual subscriptions on the following basis:

For a Fellow by a payment of £102 18*s.* (98 guineas).

For an Associate or Licentiate by a payment of £58 16*s.* (56 guineas), with a further payment of £44 2*s.* (42 guineas), on being admitted as a Fellow.

In the case of members in the Dominions overseas who are members of allied societies in those Dominions, the following basis will operate:

For a Fellow by a payment of £70. For an Associate or Licentiate by a payment of £47 5*s.* (45 guineas) with a further payment of £22 15*s.* on being admitted as a Fellow.

Provided always that in the case of a Fellow or Associate the above compositions are to be reduced by £1 11*s.* 6*d.* per annum for every completed year of membership of the Royal Institute after the first five years, and in the case of a Licentiate by £1 11*s.* 6*d.* per annum for every completed year of membership of the Royal Institute, with a minimum composition of £9 9*s.* in the case of Fellows and £6 6*s.* in the case of Associates and Licentiates.

COMPETITIONS

Competition for a Festival Hall, Wirral

The Wirral Urban District Council invite architects to submit designs in competition for a Festival Hall to be erected at Heswall, Wirral, Cheshire.

Assessor: Mr. P. Garland Fairhurst, M.A. [*F*].

Premiums: £500, £350, £250.

Last day for submitting designs: 28 April 1951.

Last day for submitting questions: 6 February 1951.

Conditions may be obtained on application to Mr. Wm. F. Roberts, Clerk to the Council, Council Offices, Heswall, Wirral, Cheshire.

Deposit £2 2s.

Festival of Britain 1951: Committee for Northern Ireland

(*a*) *Competition for Design of Hotel.*

(*b*) *Competition for Design of a Recreation Centre.*

The Royal Society of Ulster Architects in association with the Council for the Encouragement of Music and the Arts (Northern Ireland) invite members and Students of the R.I.B.A. and its Allied Societies and/or Registered Architects *born or normally resident in Northern Ireland* to submit designs in competition for:

(*a*) A Seaside Hotel. Premiums: £200, £100, £50.

(*b*) A Recreation Centre. Premiums: £100, £50, £25.

Assessor: Mr. Desmond FitzGerald, B.Arch., M.R.I.A.I., A.M.T.P.I. [*A*].

Last day for submitting designs: 31 March 1951.

Although it is unlikely that these subjects will be built they have been carefully selected to meet a known need.

Separate schedules of conditions are available in respect of each competition, and these may be had on application to the Hon. Secretary, Royal Society of Ulster Architects, 7 College Square North, Belfast, enclosing a deposit of £1 1*s.* in respect of each schedule of conditions required.

COMPETITION RESULT

Competition for Medical Buildings Extension, Edinburgh University

1. Mr. W. N. W. Ramsay [*A*], of Messrs. C. J. McNair, Elder and Ridley [*L*/*A*/*A*].
2. Messrs. P. N. Taylor [*A*] and J. Holt [*F*].
3. Mr. A. J. M. Tolhurst [*A*].

BOARD OF ARCHITECTURAL EDUCATION

R.I.B.A. Final Examination

The following candidate has been awarded a *Distinction in Thesis:* Mr. R. A. Hewish [*Student*], Orpington, Kent.

ALLIED SOCIETIES

Changes in Officers and Addresses

West Yorkshire Society of Architects—Harrogate Branch. Change of address of Hon. Secretary, Mr. R. A. Ronchetti [*L*] to Ornhams Hall, Boroughbridge, Yorkshire.

Royal Australian Institute of Architects—New South Wales Chapter. President, Mr. Alan E. Stafford, F.R.A.I.A., University Chambers, 78 Elizabeth Street, Sydney. Hon. Secretary-Hon. Treasurer, Mr. N. A. W. Ashton, c/o Department of Local Government, Sydney.

GENERAL NOTES

Post-war Revival of 'Leeds in London' Activities

Any ex-students of the Leeds School of Architecture now working in the London area who are interested in the revival of the pre-war 'Leeds in London' Annual Dinners are asked to contact Mr. Macfarlane Widdup [*A*], at the Peter Dunham Group, 42-44, Hastings Street, Luton, Bedfordshire.

Notes from the Minutes of the Council

MEETING HELD 12 DECEMBER 1950

Appointments

(A) University of London Architectural Education Committee: R.I.B.A. Representatives for year 1951-52: Mr. Kenneth M. B. Cross [*F*] and Mr. Anthony Chitty [*F*], Chairman and Vice-Chairman of the R.I.B.A. Board of Architectural Education.

(B) Building Research Congress 1951: R.I.B.A. Delegates: Mr. Frederick Gibberd [*F*], Vice-President, and Mr. Lister P. Rees [*A*], Chairman of the Architectural Science Board.

(C) Royal Sanitary Institute Health Congress, Southport, 23-27 April 1951: R.I.B.A. Delegate: Mr. Leonard Rigby [*F*], President of the Southport Architectural Society.

(D) B.S.I. Committee TIB/1—Grading of Timber: Mr. G. Newell [*A*] in place of the late Mr. A. H. Barnes [*F*].

The Honorary Associateship: It was agreed to invite the Earl of Rosse, M.B.E., and Mr. A. S. Oswald, M.A., to accept nomination for election to the Honorary Associateship.

Committee to Review the Present System of Architectural Education: Following a recommendation made by the Joint Meeting of the Council and Allied Societies' Conference held on 15 November 1950 that the present system of Architectural Education should be further reviewed with especial reference to practical training, the Council appointed a committee, consisting of the following, to review the matter and make a report: Mr. Kenneth M. B. Cross [*F*], Chairman, R.I.B.A. Board of Architectural Education (Chairman), Messrs. Anthony Chitty [*F*], W. A. Eden [*F*], W. B. Edwards [*F*], Philip G. Freeman [*F*], J. L. Gleave [*A*], Leonard C. Howitt [*F*], Lockhart W. Hutson [*F*], R. Furneaux Jordan [*F*], Andrew Rankine [*A*], F. C. Saxon [*F*], and T. E. Scott [*F*].

South Wales Institute of Architects: Alterations to Rules: The Council gave formal approval to alterations to rules 6 (*a*) and 12 of the rules of the South Wales Institute of Architects.

London County Council Building Bye-laws: The Council approved a commentary prepared by the Architectural Science Board on parts 8, 9, 10 and 11 of the draft revisions of the L.C.C. Bye-laws submitted by the L.C.C. for the Institute's comments.

A.B.S. Centenary Appeal: Exhibition: The Council approved a recommendation from the Public Relations Committee that a small exhibition and discussion on homes for old people should be held at the R.I.B.A. early in 1951 in connection with A.B.S. Centenary Appeal.

Ministry of Health Housing Medal 1951: At the request of the Ministry of Health, the R.I.B.A. is again taking responsibility for the administration of the appointment of chairmen and architect-members of the regional awards committees.

The Allied Societies have already been asked to nominate architect-members for the committees.

The Council made the following appointments of Chairmen: Region 1—Northern Headquarters, Newcastle, Mr. F. Austin Child [*F*]; Region 2—E. and W. Riding Headquarters, Leeds, Mr. Hubert Bennett [*F*]; Region 3—North Midlands Headquarters, Nottingham, Mr. T. N. Cartwright [*F*]; Region 4—Eastern Headquarters, Cambridge, Mr. James Macgregor [*F*]; Region 5—London, Sir Lancelot Keay (Past President); Region 6—Southern Headquarters, Reading, Mr. A. L. Roberts [*F*]; Region 7—South Western Headquarters, Bristol, Mr. G. D. Gordon Hake [*F*]; Region 8—Wales Headquarters, Cardiff, Sir Percy Thomas (Past President); Region 9—Midlands Headquarters, Birmingham, Mr. G. B. Cox [*F*]; Region 10—North Western Headquarters, Manchester, Professor R. A. Cordingley [*F*]; Region 12—South Eastern Headquarters, Tunbridge Wells, Mr. A. B. Knapp-Fisher [*F*].

In addition the Council appointed the following as architect-members for the Awards Committee for Region No. 5—London: Mr. C. E. Culpin [*F*], Mr. A. W. Kenyon [*F*], Mr. Edward Maufe [*F*].

Allied Societies have been asked to give effect to the desire of the Minister of Health to include a number of last year's medal winners as members of committees.

Membership: The following members were elected: as Fellows, 12; as Associates, 519.

Students: 152 Probationers were elected as Students, R.I.B.A.

Applications for Election: Applications for election were approved as follows: *Election* 6 *February* 1951: as Fellows, 5; as Associates, 56; as Licentiates, 6. *Election* 1 *May* 1951 (*Overseas Candidates*): as Fellows, 2; as Associates, 6.

Resignations: The following resignations were accepted with regret: Ronald McConnal Butler [*F*], Humphry Deane [*F*], Charles Frederick William Dening [*F*], Sir Charles Reed Peers [*F*], James Scott Glass [*A*], Wallace George Mitchener [*L*].

Applications for Transfer to Retired Members' Class under Bye-law 15: The following applications were approved: as Retired Fellows: Arnold Edwin Brooks, Sydney Jupp, John Harold Sayner, John Daniel Swanston, Thomas Walker. As Retired Licentiates: Charles Frederick Deffee, George Christie Morton, Edward Phillips, Harold Ascensus Wilkinson.

Obituaries

Arthur Charles Bunch [*F*], who died on 20 September, aged 71, was county architect for Warwickshire from 1921 to 1945. He was Vice-President of the R.I.B.A. from 1940 to 1944. As county architect he was responsible for many school and hospital buildings in Warwickshire, but perhaps the most important was the New County Offices built between 1929 and 1932.

In an honorary capacity, Mr. Bunch was responsible for the design and building of Leamington's Art Gallery, in which a number of his own water colours were subsequently hung. In 1949 he was elected a member of the Leamington Town Council.

He leaves a widow and one son, Mr. Arthur Brian Bunch [*A*], who a few months ago was appointed Borough Architect and Chief Planning Officer of the County Borough of Southport.

Mr. A. Leonard Roberts [*F*] writes:

'Arthur Charles Bunch was a native of Winchester, where his father was for many years the highly-esteemed Secretary of the Hampshire Friendly Society. While articled to the late Mr. J. B. Colson [*F*], who was Architect to the Dean and Chapter of Winchester Cathedral, Arthur Bunch came in contact with much fine traditional work, which he studied carefully and measured meticulously, and he soon became an extremely good draughtsman, a keen water-colour artist and a frequent exhibitor at the annual exhibition held by the local Society of Artists. He pursued his artistic studies at the Winchester School of Art, and on the completion of his articles became an assistant to Mr. Colson, where he remained until June 1905. He then left to take up an appointment as an architectural assistant on the architectural staff of the County Surveyor of Hampshire, Mr. W. J. Taylor, A.M.I.C.E., of which I was in charge as Chief Architectural Assistant. The most important work upon which Bunch was engaged was the design of a new block of County Offices in the Castle Avenue at Winchester, which was a traditional building with flint facings and Chilmark stone dressings to harmonize with its surroundings, and for which Sir Thomas Jackson was appointed Consulting Architect. It was largely to Bunch's credit that Sir Thomas altered only a string course in giving his approval to the scheme.

'At a later date, when I was appointed Architect to the Education Committee, Bunch became Chief Architectural Assistant. While I was serving in the Forces in 1914, he was appointed Assistant County Architect. He conducted the work of the Department through a very difficult time with great credit to himself. After my return Bunch left in August 1921, to take up the newly-established appointment of County Architect of Warwickshire. Before he could get to work there he had to collect a staff and organize the work of his new Department. His professional skill was soon evident in his designs for the important extensions to the County Offices and the Shire Hall in Northgate Street, Warwick. Costing about £107,000, the completed building was opened on 12 October 1932, by the Lord Lieutenant of the County. Many other fine buildings in Warwickshire were constructed to his designs. Secondary schools for girls at Rugby, Nuneaton, Solihull, Sutton Coldfield, and for boys at Solihull, Sutton Coldfield and Atherstone are simple and dignified designs, now old enough to be much loved by staff and pupils. Among his other works, which included many elementary schools, some employing simple light steel frames, perhaps the most noteworthy are the Surgical Block at the Hertford Hill Sanatorium, the Nurses' Home at the Central Hospital, Warwick, Petty Sessional Courts at Coleshill and Solihull, the Rugby Technical College, Chapels at Hertford Hill and Weedon, and the small but most attractive Art Gallery at Leamington Spa.

'Arthur Bunch was a man who was extremely proud of his profession, and he never spared himself in his efforts to improve the status of architects as a whole and architecture in particular In 1940 his labours were appreciated to such an extent by the members of the R.I.B.A. as to make him a Vice-President. His election to this office was a specially memorable one because it was the first occasion on which an architect in local government service had received such an honour.

'In addition to his official appointment as County Architect of Warwickshire, he became Honorary Architect to the Warwickshire Town and County Planning Committee and also Honorary Architect to the Leamington Art Gallery, and for some years he was a member of the West Midland Group for Reconstruction. When Bunch retired from his official appointment in 1945 his Buildings Committee placed on record their appreciation in a Resolution which reads, "Mr. Bunch has always served the Council with distinction and outstanding ability."

'After four years' retirement Mr. Bunch was elected unopposed to the Leamington Borough Council as a representative of the Lillington and Milverton Ward, and within a few days of his election he was made Chairman of their Housing Committee. In spite of indifferent health at the time, Councillor Bunch threw himself whole-heartedly into the leadership of this Committee, on which his wide experience was particularly valuable.

'For many years he was a Member of the local Rotary Club, and was elected its President for 1936-37.

'To those who knew him best, he will always be credited with straightforward dealing and a keen sense of justice and as having possessed more than an ordinary insight into the appreciation of legal procedure. He had the ability to express his views clearly and the courage to prevent him from shirking what he believed to be his duty in the various capacities in which he served. When necessary, he pressed his views with tenacity, both in the interests of sound judgment and economy.

'During last year he was chosen by the R.I.B.A. as Chairman of the Ministry of Health Housing Awards Committee for the Midland Region.

'Notwithstanding his busy life, he managed to give much of his valuable time and wisdom to the affairs of the R.I.B.A., and his services in this connection will ever be remembered with gratefulness, not only in connection with his Vice-Presidency 1940-44, but also as a member of the Council for many years, and further as a member of the Executive Committee, Finance and House Committee, Registration Committee, Public Relations Committee, Official Architects' Committee, Central Panels Committee, Policy Committee, Professional Conduct Committee, School Design and Construction Committee, Town and Country Planning Committee, Private Practitioners' and Official Architects' Committee, the Architects Registration Council, and its Finance and General Purposes Committee, of which he was the Chairman.

'It has been my privilege to have been associated with Bunch in some of his R.I.B.A. work, and since we were never entirely out of touch after he left me for Warwickshire, I feel I have as intimate a knowledge of his natural kindness and ability as any of his friends.

'Bunch leaves behind him a remarkable record of service to his profession which is grateful for his many achievements in their interest.'

James Alexander Arnott, F.S.A. Scot. [*F*]. Mr. E. J. MacRae [*F*], writes:

'"A vaillans coeurs rien impossible". The sudden death in his eightieth year, on 2 September, James Arnott removed from the profession one who did much for it and who was beloved by all who knew him. He had intended to take his Arts degree but abandoned this after a year, though all his life he kept up his Classics, and he decided to take up architecture. He entered the office of J. Russell Walker in Hanover Street, Edinburgh, attending the architectural classes of the Edinburgh School of Design in the Royal Institution. Later he worked with Kinnear and Peddie and never ceased to acknowledge the influence of Peddie in his training. He came into a time when many important buildings were being erected in Edinburgh and with his thoroughness and extensive knowledge of detail he was able to gain great experience. With Dunn and Findlay he worked in the Wesleyan Hall, Tollcross, finished in 1907, and on the new SCOTSMAN building, which, when opened in 1904, was described as the largest building erected in Edinburgh by private enterprise. Soon after he went to J. Hippolyte Blanc's office. During all this time he was an earnest student, measuring and sketching outside and in the Science of Art Museum. He began early to travel, for study, in Belgium and France. Later Norway was to cast a spell over him.

'In 1908, after years of hard work, he published with John Wilson the well-known folio volume on the Petit Trianon of Louis XV at Versailles—a strenuous task which fully implemented the description given in the book as "Measured drawings and photographs of the entire buildings external and internal, including furniture, iron and metal work". All drawings and photographs of both authors are superb, but for sheer beauty of draughtsmanship some of Arnott's details, for example, of the staircase, are outstanding.

'He entered partnership in 1911 with Mr. Ernest Auldjo Jamieson, taking over the business of Sydney Mitchell and Wilson in Young Street and for nearly a quarter of a century there was a steady output of good work until Jamieson's retirement. Arnott then worked alone, but gradually combined efforts with J. Inch Morrison, on whose death in 1944 he carried on the firm of Arnott and Inch Morrison at 50 Queen Street, Edinburgh. His partner, Mr. J. D. Carnegie [*A*], is now carrying on the business. Among many buildings, including country houses, the following works chiefly of the time of the partnership with Auldjo Jamieson might be mentioned: Hairmyres and Astley Ainslie Hospitals; extensions of the Church of Scotland Offices, George Street; and of the Scottish Life Assurance Co., St. Andrew Square; entrance gates and approaches at Pittencrieff Glen, Dunfermline.

'Arnott's service to his profession was of long duration and unstinted. He was President of the Edinburgh Architectural Association from 1932 to 1934 and did splendid work on the Library Committee, of which he was Convener for three years. He will be specially remembered for his labour on the Education Committee of both the Royal Incorporation and the local Chapter and for his interest in the Scottish Students' Training and their Successor. His chart of 1932, showing the incidence in prize winning of the four Scottish Schools since 1836, did much to stimulate keenness and

competition. He served on the R.I.B.A. Council and the Allied Societies Conference and took great interest in the meetings of the A.R.C.U.K. Discipline Committee. He was also able to further the interests of students by many years' service on the Board of the Edinburgh College of Art.

'He had a life-long connection with the Barclay church in which he was for a long time an Elder, was convener of its Fabric Committee and designed its 1914-1918 War Memorial. He was a useful member of the Church of Scotland Buildings Licences Advisory Committee and of the War Damage Committee.

'After 25 years of happy married life, his wife died in 1939.

'James Arnott had a great capacity for work and revelled in it. On his death he left working plans completed during his seventy-ninth year of a new church extension building of which all the drawings and even the lettering were by his own hand. He was full of interest in life and, as an old friend remarked, "he was never bored". His genial and generous nature endeared him to all, and he will be missed not only by older men who had the good fortune to be his friends, but by many of the younger members of the profession. Nothing daunted him. A favourite of his was the old French motto at the beginning of this notice. His was a full and happy life.'

Frederick William Porteus [*L*], a partner in the firm of Ward, Porteus and Ruddick, of York, died on 27 October, aged 55. Mr. Porteus was educated at Archbishop Holgate's Grammar School, York, and was trained for architecture with Mr. Walter Henry Brierley [*F*] of York, and at the York School of Art, commencing personal practice as third partner in the firm of Ward and Leckenby in 1926 until 1942, when he became second partner in the firm of Ward and Porteus. In 1945 the firm was styled Ward, Porteus and Ruddick.

Mr. Porteus's principal architectural works were three new wings to St. John's College, York, two new wings to the Ripon Training College, St. Laurence's Parish Hall, York, Pocklington School, new offices for the Halifax Building Society in York, the re-building of office premises in Blake Street, York, a hospital at Northallerton, and additions to the Purey Cust Nursing Home, York, also various shop premises in York.

During the second world war Mr. Porteus was Senior Assessor for the York area, War Damage Commission. He was from 1941-50 Hon. Treasurer for the York and East Yorkshire Architectural Society. The surviving partners in the firm of Ward, Porteus and Ruddick of 9 Museum Street, York, are Mr. Kenneth Ward [*F*] and Mr. Lawrence H. Ruddick [*L*].

Vincent Jerome Esch, C.V.O. [*F*]. Mr. Vincent Jerome Esch, who was responsible for the design of a number of important buildings in India, died at the age of 74 on 9 December last.

Among the appointments which Mr. Esch held were those of architect to the Bengal Nagpur Railway Co. and superintending architect to the trustees of the All India Victoria Memorial. His designs won competitions for the Bengal Club and Chambers, Calcutta, and the Allahabad Bank, Calcutta. He was commissioned by the Government of H.E.H. the Nizam of Hyderabad to design the High Courts of Justice, Oosmania General Hospital, the City High School and Hyderabad railway station. Other works in Calcutta included Alexandra Court (a block of flats), Temple Chambers (chambers and offices) and the Royal Calcutta Turf Club race stand and dining hall.

Mr. Stephen Wilkinson, A.F.C. [*Ret. F*], writes:

'The death of Vincent Jerome Esch removes one of the three practising architects in Calcutta at the time of the outbreak of the first world war. For many years he held the position of Chief Architect for the Bengal Nagpur Railway and designed the large administrative block of buildings for the Garden Reach, B.N.Railway. Calcutta. Being successful in winning the competition for the new Bengal Club at Calcutta, he carried out this work and commenced private practice on his own account in Calcutta. He was then appointed superintending architect for the All India Victoria Memorial, Sir William Emmerson being the architect. On completion of the work Esch was decorated with the C.V.O. in recognition of his services. His further works included commissions from the native State of Hyderabad and other works in India. His designs were of a most unorthodox nature and did not by any means satisfy or appeal to all observers. A difficult man to get along with, he took a "lot of knowing", as I found out when we worked together on the proposed Hotel Majestic in Calcutta. He was an enthusiastic and able amateur actor and a clever caricaturist and for many years a well-known character in what was at the time known as the City of Palaces—Calcutta.'

Richard Matthews [*F*], senior partner in the firm of R. Matthews and Son, of Westminster Chambers, Nantwich, now carried on by Mr. R. K. Matthews [*L*], died on 6 March 1950, aged 74.

His principal architectural works were agricultural buildings, breweries, licensed houses and the renovation and repair of Cheshire's ancient manor-houses, but he was also the architect of housing schemes in Nantwich and district in the inter-war years. He was at one time an assessor to the War Damage Commission, Manchester.

Harold Vernon Seward Phillips [*A*] died on 4 November last at the early age of 32. He had been an asthmatic from babyhood and spent a great deal of his short life in the sickroom under constant medical attention. This great handicap was ever an obstacle to the exercise of full scope for his talents.

He was appointed an architectural assistant to the City of Birmingham Public Works Department in December 1944 and assisted in the preparation of contract drawings, plan arrangements and designs for municipal houses and also assisted with many layouts for temporary 'prefab' sites immediately after the war. Housing problems constituted one of his main architectural interests, and recently, until the illness from which he had suffered for many years closed his career, he was engaged upon the preparation of designs for special types of houses and four-bedroom doctors' houses for municipal estates.

Apart from his architectural career, Mr. Phillips was very interested in birds and bird life, as well as story writing, which he took up primarily as a hobby in periods of illness. He himself illustrated his stories with pen and ink pictures.

H. Hopson Hill [*L*], who practised in Harpenden, Herts, died at the age of 60 on 24 November 1950. He commenced personal practice in 1932 and was mainly concerned with domestic architecture, but other of his works include the Waterend Barn, St. Albans; Nettleden Lodge, Nettleden, Loundes Hall, Harpenden; the restoration of Waterend House, near Hatfield; and numerous works for Lord Brocket in connection with his estates, showrooms and shops at Harpenden.

At present the practice at 2, Leyton Green, Harpenden, is being continued under the direction of Mr. M. A. Mimmack [*A*], who was Mr. Hill's chief assistant.

Membership Lists

ELECTION: 6 FEBRUARY 1951

An election of candidates for membership will take place on 6 February 1951. The names and addresses of the candidates with the names of their proposers, found by the Council to be eligible and qualified in accordance with the Charter and Bye-laws, are herewith published for the information of members. Notice of any objection or any other communication respecting them must be sent to the Secretary, R.I.B.A., not later than Monday 29 January 1951.

The names following the applicant's address are those of his proposers.

AS FELLOWS (5)

Bonsall: Richard Emrys [*A* 1938], 23 North Parade, Aberystwyth; Swyn-y-Werydd, High Street, Aberystwyth. Applying for nomination by the Council under Bye-law 3 (*d*).

Gardner-Medwin: Robert Joseph, B.Arch., Dip. C.D. (Liverpool), A.M.T.P.I. [*A* 1932], Chief Architect and Planning Officer, Department of Health for Scotland; 1 Gilmour Road, Edinburgh, 9. Sir Francis Mears, J. H. Forshaw, L. W. Hutson.

Johnston: Ninian Rutherford Jamieson, D.A. (Glas.), A.M.T.P.I. [*A* 1934], 256 West George Street, Glasgow, C.2; 5 Glenbank Road, Lenzie, near Glasgow. G. A. Boswell, A. G. Henderson, E. G. Wylie.

Lawrence: Frederick Orchard, B.Arch. (Liverpool) (Rome Scholar in Architecture 1920) [*A* 1919], Bank Chambers, 3 Cook Street, Liverpool, 2; 7 Rolleston Drive, Wallasey, Cheshire. T. M. Alexander, F. C. Saxon, Lieut.-Col. Ernest Gee.

Thoms: William George [*A* 1913], 9 St. Peters Church Walk, Nottingham; 10 Old Hall Drive, Mapperley Park, Nottingham. C. E. Howitt, John Wollatt, C. H. Calvert.

AS ASSOCIATES (56)

The name of a school, or schools, after a candidate's name indicates the passing of a recognized course.

Alexander: Douglas (Northern Poly. (London): Dept. of Arch.), The Gate House, Fore Street, Hatfield, Herts. T. E. Scott, C. W. Fox, George Fairweather.

Alexander: Theodore Emmanuel (Arch. Assoc. (London): Sch. of Arch.), 43 Buckland Crescent, N.W.3. R. F. Jordan, Arthur Korn, H. G. Goddard.

Apps: William Geoffrey (Northern Poly. (London): Dept. of Arch.), 44 Park Road, New Barnet, Herts. T. E. Scott, S. F. Burley, H. Bramhill.

Bacon: Leslie Victor [Special Final], Chisenbury Court, East Chisenbury, near Marlborough, Wilts. L. S. Stanley, T. Walker, A. F. French.

Biggins: Ronald Samuel, B.Arch. (Liverpool) (Liverpool Sch. of Arch.: Univ. of Liverpool), Northfields, Chester Avenue, Whitchurch, Salop. Prof. L. B. Budden, F. C. Saxon, B. A. Miller.

Bruce: Alastair Charles, D.A. (Dundee) (Dundee Coll. of Art: Sch. of Arch.), 8 Gregg Hall Crescent, Lincoln. John Needham, R. E. M. Coombes, P. F. Burridge.

Burden: John Reginald (Arch. Assoc. (London): Sch. of Arch.), 125 Parkway, N.W.1. Henry Elder, R. F. Jordan, A. R. F. Anderson.

Choksey: Pesi Jehangir [Final], 29 Hotham Road, Putney, S.W.15. S. H. Parelkar, H. N. Tallas, W. H. Gunton.

Cole: Austin Oliver, Dip.Arch. (Sheffield) (Univ. of Sheffield: Dept. of Arch.), 'Sunways', Rampton Road, Willingham, Cambridgeshire. Prof. Stephen Welsh, H. B. Leighton, H. B. S. Gibbs.

Cran: Jean Elizabeth (Miss) (Aberdeen Sch. of Arch.: Robert Gordon's Tech. Coll.), 44 Belgrave Terrace, Aberdeen. E. F. Davies, A. B. Gardner, J. G. Marr.

Dean: Helen Kathleen (Miss), B.Arch. (Liverpool) (Liverpool Sch. of Arch.: Univ. of Liverpool), 6 Grosvenor Road, Cressington Park, Liverpool, 19. Prof. L. B. Budden, B. A. Miller, F. X. Velarde.

Dennis: Raymond Thomas, Dip.Arch. (Nottm.) (Nottingham Sch. of Arch.), 224 Hucknall Road, Nottingham. C. St. C. Oakes, T. C. Howitt, A. E. Eberlin.

Dupree: David John (Arch. Assoc. (London): Sch. of Arch.), 350 Pickhurst Rise, West Wickham, Kent. Frank Risdon, Henry Elder, R. F. Jordan.

Durling: Peter John Corder (Arch. Assoc. (London): Sch. of Arch.), 7 Bridge Street, Bath. R. F. Jordan, Arthur Korn, H. G. Goddard.

Farrington: Douglas Hubert (Arch. Assoc. (London): Sch. of Arch.), 57 Alexandra Avenue, South Harrow, Middlesex. R. F. Jordan, Henry Elder, A. R. F. Anderson.

Galley: Joseph Robert (Northern Poly. (London): Dept. of Arch.), 'Chase Lodge', Page Street, Mill Hill, N.W.7. T. E. Scott, H. Bramhill, R. J. H. Minty.

Grossey: Duncan George, Dip.Arch. (Cardiff) (Welsh Sch. of Arch.: The Tech. Coll., Cardiff), 5 Butleigh Avenue, Victoria Park, Cardiff. Lewis John, Harry Teather, C. F. Jones.

Hall: William Donald Campbell, B.Arch. (Dunelm) (King's Coll. (Univ. of Durham), Newcastle-upon-Tyne, Sch. of Arch.), 'Greystones', Oakwood, Hexham, Northumberland. Prof. W. B. Edwards, R. N. MacKellar, J. H. Napper.

Harvey: Kenneth, M.C. Dip.Arch. (Manchester) (Victoria Univ., Manchester: Sch. of Arch.), 76 Chorley New Road, Lostock, Bolton, Lancs. Prof. R. A. Cordingley, A. J. Hope, R. M. McNaught.

Helps: Stella (Miss) (Arch. Assoc. (London): Sch. of Arch.), Cregane, near Rosscarbery, Co. Cork, Eire. R. F. Jordan, Henry Elder, E. Forster.

Hill: Julian Ledger (Arch. Assoc. (London): Sch. of Arch.), 37 Evelyn Gardens, S.W.7. R. F. Jordan, Henry Elder, A. R. F. Anderson.

Harris: Morris Bradbury (Leicester Coll. of Art and Tech.: Sch. of Arch.), 8 Ivy Road, Leicester. F. Chippindale, T. W. Haird, S. Penn Smith.

Johnson: Richard Victor, B.Arch. (Liverpool) (Liverpool Sch. of Arch.: Univ. of Liverpool), 18 Highfield Road, Timperley, Altrincham, Cheshire. Prof. L. B. Budden, B. A. Miller, F. X. Velarde.

McKay: Peter Harrison, B.Arch. (Liverpool) (Liverpool Sch. of Arch.: Univ. of Liverpool), 18 Carrick Crescent, Giffnock, Renfrewshire. Prof. L. B. Budden, B. A. Miller, F. X. Velarde.

McKillop: Alan Duncan, D.A. (Edin.) (Edinburgh Coll. of Art: Sch. of Arch.) 74 Corbishill Crescent, Edinburgh, 4. Alexander Cullen, J. A. Ross, W. J. Taylor.

Mechan: Gordon William Hamilton, D.A. (Dundee) (Dundee Coll. of Art: Sch. of Arch.), 47 Magdalen Yard Road, Dundee. John Needham, T. H. Thoms, G. C. Young.

Meldrum: Edward Alexander (Aberdeen Sch. of Arch.: Robert Gordon's Tech. Coll.), 12 Beechgrove Gardens, Aberdeen. E. F. Davies, A. B. Gardner, J. G. Marr.

Metcalfe: Michael [Final], 42 Elsley Road, Tilehurst, Berks. Sir Thomas Bennett, M. L. Winslade, C. E. Simmons.

Moodie: Eric Goldsmith, B.Sc. (Arch.) (Glas.) (Glasgow Sch. of Arch.), 23 Bridge Street, Rothesay, Bute. Prof. W. J. Smith, and applying for nomination by the Council under Bye-law 3 (*d*).

Morris: Evan John, Dip.Arch. (Leics.) (Leicester Coll. of Art and Tech.: Sch. of Arch.), 'Tolcarne', 3 Evington Lane, Leicester. F. Chippindale, S. Penn Smith, T. W. Haird.

Morris: Hugh Cameron (Arch. Assoc. (London): Sch. of Arch.), 21 Devonshire Terrace, W.2. R. F. Jordan, Henry Elder, Arthur Korn.

Motion: Alexander Tawse, D.A. (Edin.) (Edinburgh Coll. of Art: Sch. of Arch.), 45 Walnut Road, Glasgow, N. W. I. Thomson, A. G. Henderson, J. A. Coia.

Munro: Gordon Robertson, D.A. (Dundee) (Dundee Coll. of Art: Sch. of Arch.), Station House, Cupar, Fife. John Needham, T. H. Thoms, A. D. Haxton.

Mutch: Forbes Robertson, Dip.Arch. (Nottm.) (Nottingham Sch. of Arch.), 58 Shakespeare Street, Nottingham. E. W. Pedley, E. H. Ashburner, P. J. Bartlett.

Nicol: Charles Adams, Dip.Arch. (Abdn.) (Aberdeen Sch. of Arch.: Robert Gordon's Tech. Coll.), 38 Cedar Place, Aberdeen. E. F. Davies, D. S. McMillan, J. G. Marr.

Nowosielski-Slepowron: Anna Maria (Mrs.), D.A. (Glas.) (Glasgow Sch. of Arch.), 58 Cumberland Street, Edinburgh, 3. Prof. W. J. Smith, J. D. Mills, John Needham.

Oldfield: Alan John Clayworth, Dip.Arch, (The Polytechnic) (The Poly., Regent Street. London: Sch. of Arch.), 49 Beacontree Avenue, Walthamstow, E.17. J. S. Walkden, Frankland Dark, David Jenkin.

Perkin: George Henry Craddock, Dipl.Arch. (L'pool) (Liverpool Sch. of Arch.: Univ. of Liverpool), Shortlands, South Drive, Ferring-by-Sea, Sussex. Prof. L. B. Budden, F. X. Velarde, B. A. Miller.

Pilch: Roman Martin, D.A. (Dundee) (Dundee Coll. of Art: Sch. of Arch.), Bracklinn, Comrie, Perthshire. John Needham, T. H. Thoms, G. C. Young.

Ricketts: George Henry (Arch. Assoc. (London): Sch. of Arch.), 42 Ditton Road, Surbiton, Surrey. R. F. Jordan, A. R. F. Anderson, Henry Elder.

Robinson: Douglas Oswald, Dip.Arch. (Sheffield) (Univ. of Sheffield: Dept. of Arch.), 'Wynook', Aston Lane, Hope, near Sheffield. Prof. Stephen Welsh, J. M. Jenkinson, H. B. Leighton.

Rostron: Jerrold [Final], 87 Lytham Road, Bilton, Rugby. Norman Culley, N. R. Paxton, R. G. Clark.

Scott: Peter Walter (Northern Poly. (London): Dept. of Arch.), 15 Kingsmead, Barnet, Herts. T. E. Scott, S. F. Burley, H. Bramhill.

Shepperson: Frank Percy, Dip.Arch. (Nottm.) (Nottingham Sch. of Arch.), 12 Mansfield Road, Sutton-in-Ashfield, Notts. Cecil Howitt, R. W. Cooper, C. E. Howitt.

Smith: George, Dip.Arch. (Dunelm) (King's Coll. (Univ. of Durham), Newcastle-upon-Tyne, Sch. of Arch.), 'Quernmore', Sunderland Road, Newbottle, Houghton-le-Spring, Co. Durham. Prof. W. B. Edwards, Prof. J. S. Allen, J. H. Napper.

Smith: Ian Neil (Edinburgh Coll. of Art: Sch. of Arch.), Wellington, Penicuik, Midlothian. Leslie Grahame-Thomson, J. R. McKay, A. H. Mottram.

Tempest: Harold Cedric, Dipl.Arch. (Leeds) (Leeds Sch. of Arch.), Craigmore, 461 Idle Road, Bradford, Yorks. Benjamin Chippindale, Eric Morley, G. H. Foggitt.

Thomson: Joseph Bruce, Dip.Arch. (Abdn.) (Aberdeen Sch. of Arch.: Robert Gordon's Tech. Coll.), 9 Hilton Street, Aberdeen. E. F. Davies, A. B. Gardner, J. G. Marr.

Thorburn: Kathleen Muriel (Miss) (Arch. Assoc. (London): Sch. of Arch.), 'Longview', Great Wheatley Road, Rayleigh, Essex. R. F. Jordan, Henry Elder, George Fairweather.

Towell: Kenneth William (Victoria Univ., Manchester: Sch. of Arch.), 28 Melrose Avenue, Smithills, Bolton. Prof. R. A. Cordingley, A. J. Hope, R. M. McNaught.

Weller: Ruth (Miss) (Birmingham Sch. of Arch.), Longfield, 152 Penn Road, Wolverhampton. A. Douglas Jones, T. J. Cahill, Mrs. M. P. Cahill.

Williams: David Owen (Welsh Sch. of Arch.: The Tech. Coll., Cardiff), 1 Hopton Gardens, New Malden, Surrey. Lewis John, C. F. Jones, L. R. Gower.

Wilson: John Charles Eunson, D.A. (Edin.) (Edinburgh Coll. of Art: Sch. of Arch.), 171 Granton Road, Edinburgh, 5. Leslie Grahame-Thomson, J. R. McKay, A. H. Mottram.

Wilson: Maurice (King's Coll. (Univ. of Durham), Newcastle-upon-Tyne, Sch. of Arch.) 2 Templar Terrace, Medomsley Edge, Consett, Durham. Prof. W. B. Edwards, Prof. J. S. Allen, J. H. Napper.

Wooldridge: Helen Marion Borger (Miss), Dipl.Arch. (U.C.L.), (Bartlett Sch. of Arch.: Univ. of London), 5 West Kensington Court, W.14. Prof. H. O. Corfiato, Daydon Griffiths, E. D. N. Bomer.

Worthington: Ronald James, Dip.Arch. (Cardiff) (Welsh Sch. of Arch.: The Tech. Coll., Cardiff), 3 Derwen Road, Cyncoed, Cardiff. Lewis John, C. F. Bates, T. A. Lloyd.

AS LICENTIATES (6)

Cranston: Alexander Reynolds Hunter, c/o Railway Executive (W.R.), 121 Westbourne Terrace, Paddington, W.2; 66 Ingleboro' Drive, Purley, Surrey. Prof. B. B. Lewis, George Coles, W. A. Ross.

Harris: George Edward, 22 Ladbroke Square, W.11. E. G. W. Souster, A. G. Alexander, A. R. F. Anderson.

MacGruer: John George, c/o Scottish Special Housing Association Ltd., 19 Palmerston Place, Edinburgh; 21 Calder Drive, Edinburgh, 11. A. A. Foote, James McLachlan, A. H. Mottram.

McLean: William, c/o Borough Architects' Office, Bournemouth; 51 Lowther Road, Bournemouth. Gabriel Steel, William McCrea, Alex Wright.

Miller: Francis David Stirton, c/o Architects' Dept., Roxburgh County Council, Newton St. Boswells, Roxburgh; 3 Weirgate Way, St. Boswells. E. S. Bell, and the President and Secretary of the Edinburgh A.A. under Bye-law 3 (*a*).

Rothwell: Rolf Holroyd, c/o The Chloride Electrical Storage Co. Ltd., Clifton Junction.

Manchester; 4 Oakwood Drive, Irlams o'th Height, Salford, 6. Arthur Brocklehurst, H. F. V. Newsome, J. E. Kewell.

ELECTION: 1 MAY 1951

An election of candidates for membership will take place on 1 May 1951. The names and addresses of the overseas candidates, with the names of their proposers, are herewith published for the information of members. Notice of any objection or any other communication respecting them must be sent to the Secretary R.I.B.A. not later than Saturday 14 April 1951.

The names following the applicant's address are those of his proposers.

AS FELLOWS (2)

Gonsal: Herbert Emmanuel, B.Arch. (Liverpool) [*A* 1932], 10 Regent Buildings, Colombo, Ceylon; 69 Kanatte Road, Colombo. H. H. Reid, Prof. S. S. Reuben, Prof. L. B. Budden.

and the following Licentiate who has passed the qualifying Examination:

Hughes: Godfrey William, M.B.E., Dept. of Works and Housing, Terrica House, 130 Creek Street, Brisbane, Queensland, Australia; 422 Bennetts Road, Brisbane. W. T. Higgins, Frederick Taylor, L. F. Bullivant.

AS ASSOCIATES (6)

The name of a school, or schools, after a candidate's name indicates the passing of a recognized course.

Bailey: Donald Campbell Rupert, B.Arch. (Melbourne) (Passed a qualifying Exam. approved by the R.A.I.A.), c/o Messrs. Stephenson and Turner, 374 Lt. Collins Street, Melbourne, Australia. Prof. B. B. Lewis, Harry Winbush, G. L. Moline.

Flanagan: Alan James (Passed a qualifying Exam. approved by the N.Z.I.A.), 17 Packe Street, St. Albans, Christchurch, New Zealand. W. G. Young, and the President and Hon. Sec. of the N.Z.I.A. under Bye-law 3 (*a*).

Khan: Taruj Ahmed (Arch. Assoc. (London); Sch. of Arch.), Deputy Chief Town Planner, Hyderabad-Deccan, India. M. Fayazuddin, Coleman Hicks, G. B. Mhatre.

Mönnig: Cornelius Richard, B.Arch. (Pretoria) (Passed a qualifying Exam. approved by the I.S.A.A.), 25 Murray Street, Brooklyn, Pretoria, S. Africa. V. S. Rees-Poole, C. S. Lodge, W. B. T. Newham.

Scott: Alexander Robert (Passed a qualifying Exam. approved by the I.S.A.A.), Flat 44, Pollsmoor Govt. Village, Retreat, Cape Town, S. Africa. Prof. L. W. T. White, O. Pryce Lewis, L. A. Elsworth.

Twentyman-Jones: Roderick Vernon, B.Arch. (Cape Town) (Passed a qualifying Exam. approved by the I.S.A.A.), Wraysbury, Pitlochry Road, Rondebosch, Cape Town, S. Africa. R. F. R. Day, S. H. Todd, H. L. Roberts.

Members' Column

This column is reserved for notices of changes of address, partnership and partnerships vacant, or wanted, practices for sale or wanted, office accommodation, and personal notices other than of posts wanted as salaried assistants for which the Institute's Employment Register is maintained.

APPOINTMENT

Mr. Cecil G. Mant [*F*], Superintending Architect in the Chief Architect's Division, has been appointed Deputy Director General of Works to the Director General of Works, Ministry of Works, Lambeth Bridge House.

PRACTICES AND PARTNERSHIPS

Mr. Edwin H. Earp [*L*] has from 1 January 1951 taken into partnership **Mr. Reginald Badger** [*A*] and they will practise as **Edwin H. Earp and Badger,** Scholars Lane, Stratford-on-Avon (Stratford-on-Avon 3424).

Mr. E. Emrys Edmunds [*F*] is relinquishing his post as Technical Adviser for Wales to the War Damage Commission, and is resuming private practice at 4 Brunswick Gardens, St. Helen's Road, Swansea.

Mr. P. Garland Fairhurst, M.A. [*F*], has taken into partnership his eldest son, **Mr. Harry M. Fairhurst,** M.A. [*A*]. The title and address of the firm, **Harry S. Fairhurst and Son,** Chancery Chambers, 55 Brown Street, Manchester, 2 (Manchester Deansgate 6886), remain unchanged.

Mr. W. F. Howard [*F*] is associated with the firm of **Whinney, Son and Austen Hall** as a partner from 1 January 1951.

Mr. H. G. Huckle, A.M.T.P.I. [*A*], of **Huckle and Durkin,** Architects and Consulting Engineers, Exchange Buildings, Liverpool, 2, has opened a London office at 55 Queen Anne Street, London, W.1 (WELbeck 2852).

Mr. C. D. Jack [*A*], Resident Architect to the Imperial War Graves Commission in France. would be pleased to receive trade catalogues etc. at 31 rue Echo, Bayeux (Calvados), France.

Messrs. Murray, Delves, Murray and Atkins (**Mr. Colin Hay Murray** [*F*], **Mr. H. Kent Atkins,** F.R.I.C.S. [*L*] and **Mr. R. Mercer Atkins,** A.R.I.C.S.) have taken into partnership with effect from 1 January 1951 **Mr. Frank L. Southey** [*A*]. The practice will continue under the style of **Murray, Delves, Murray and Atkins** at Halsey House, 13 Red Lion Square, London, W.C.1 (HOLborn 6284), and 13a Enys Road, Eastbourne (Eastbourne 3155).

Mr. A. Beaumont Owles [*A*], who has been associated with **Mr. Herbert S. Bostock** [*L*] for several years, has acquired his practice at Southall, Middlesex. In future the practice will be known as **Bostock and Partners,** and will continue at Central Hall Buildings, Station Approach, Southall, Middlesex (Southall 3491-2), where he will be pleased to receive trade catalogues etc.

Mr. W. James Venables [*L*] has taken into partnership **Mr. C. Liddell Williams** [*A*]. The practice will continue from 1 West Road. Congleton, Cheshire, under the style of **Venables and Williams.**

CHANGES OF ADDRESS

Mr. John J. Cardwell [*A*] has removed his practice to 5 York Road, Tunbridge Wells. The telephone number, Tunbridge Wells 437, remains unchanged.

Mr. J. O'Hanlon Hughes, [*F*], has removed to 24 Ramleh Park, Milltown, Dublin (Dublin 93480).

Mr. R. A. Ronchetti [*L*] has removed to Ornhams Hall, Boroughbridge, Yorkshire, from Harrogate.

PRACTICES AND PARTNERSHIPS WANTED AND AVAILABLE

Associate (39), A.M.T.P.I., seeks partnership or position leading thereto in country or semi-country practice. 16 years varied experience and 5 years planning experience. West Midlands preferred, though any district considered. Box 96, c/o Secretary, R.I.B.A.

South-West coastal town practice for disposal. Good connections. Box 97, c/o Secretary, R.I.B.A.

Fellow with creative contemporary spirit and experience in housing, flat and office building, conversions and all-round practice seeks partnership in well-established London firm of architects. Box 4, c/o Secretary, R.I.B.A.

Members with excellent offices in W.C. district London are prepared to purchase London or Home Counties practice; would also consider partnership. Box 2, c/o Secretary, R.I.B.A.

WANTED

Books Wanted: *History of Mosaics* (E. W. Anthony), *East Christian Art* (C. M. Dalton), *Byzantine Art and Archaeology* (Dalton), *Byzantine Art* (D. Talbot Rice), *Romanesque Architecture in Western Europe* (A. W. Clapham). *English Romanesque Architecture* (Clapham), *Mediaeval Art* (Lethaby), *Great Church Towers of England* (F. J. Allen), *Manuel d'Art Byzantin* (Vol. II) (C. Diehl). Box 94, c/o Secretary, R.I.B.A.

ACCOMMODATION

Member seeks office accommodation, approx. 600-700 sq. ft., preferably east Bloomsbury area, London. Box 1, c/o Secretary, R.I.B.A.

To Let. Two large rooms (ground floor) in Manchester Square, London, W.1. Box 86, c/o Secretary, R.I.B.A.

Architects in private practice urgently require limited office accommodation, one or two rooms in Central London area. Box 95, c/o Secretary, R.I.B.A.

Architects with offices near Victoria Station have ground floor accommodation available suitable for individual architect or small firm. Box 5, c/o Secretary, R.I.B.A.

Pleasant office accommodation, London, W.C., offered by Fellow at moderate cost to colleague with work on hand willing to work in association with definite view to progressive partnership. Box 3, c/o Secretary, R.I.B.A.